AIR CONDITIONING & REFRIGERATION NEWS
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Stories of the Week
John Bull Feels No Pain
What About London?
Refrigeration Gains
Commercial Refrigeration Growing
Industrial Market In the Empire
Prestcold Is a Leader
Alfred Tack, Salesman
Air Conditioning?
Bits and Pieces

Stories of the Week

Usually, so the story goes, an odd figure emerges from a Flying Saucer and gutterals:

"Take me to your leader."

This man-from-Mars was different.

"I've been in that damned Saucer an uncomfortable long time," he announced. "Take me to your Men's Room."

In England a stage play, "World Without Men," was rehearsed with a cast of seven women and a cat. It didn't open in June as scheduled.

Five of the seven women, plus the cat, became pregnant during the rehearsal period.

John Bull Feels No Pain

Please don't feel sorry for the Queen, the Duke, or jolly old England. Pundits who've pontificated profoundly upon the presumed pulverization of the British Empire have been premature.

Great Britain may be down on occasion, but never count her out. She always seems to rise again—often in a new guise, of course. "England always wins the last battle."

Consider the supposed "dissolution of the Empire," which so many political experts seem to take for granted. India, Burma, Ceylon, Suez, the Middle East gone, maybe? Hmm. Let's see: an observant economist riding in a Sputnik while studying the globe could report that Canada and Australia—independent but still loyal—are:

(1) Developing astoundingly nowadays;

(2) Absorbing American and British capital plus European surplus labor wondrously;

(3) Still reverent toward the Queen.

In today's international poker game, Australia and Canada are Britain's long-run aces-in-the-hole. Both are enormous in area, tremendous in terms of natural resouces waiting to be tapped, eager to expand—and underpopulated. They comprise

(Continued on Page 12, Col. 1)

Architects, Consulting Engineers, And Contractors at Work

INTERNATIONAL instability, juvenile delinquency, architects, and consulting engineers are four unfortunate aftermaths of World War II, according to jocular remarks expressed tongue-in-cheek by several New York contractors who specialize in large commercial and industrial air conditioning. These opinions were grinned (or chagrined) in personal, on-the-spot interviews recently.

Contractors on other occasions mentioned consulting engineers only in hushed, abashed, and reverent tones. Apparently these controversial gentlemen vary in com-

(Concluded on page 18)

Industry Attracting Few Top Engineering Graduates

We Fail To Spark Interest, ASHAE-ASRE Told

MINNEAPOLIS—"There are fewer than 100 Ph. D.'s in the joint membership of ASRE and ASHAE."

So reported Prof. H. H. Hendrickson, University of Washington, Seattle, in introducing the panel of speakers who took part in a joint conference of education recently during the 54th annual meeting of the American Society of Refrigerating Engineers and the semiannual meeting of the American Society of Hating & Air-Conditioning Engineers.

Hendrickson charged that the romantic fields—electroncis, nucleonics, and the like—may be guilty of stockpiling engineers while other industries are short-handed.

"We are failing to generate interest in refrigeration, heating, and air conditioning, and are not attracting the number or the kind of people we need," according to Jack B. Chaddock, Rensselaer Polytechnic Institute, Troy, N. Y.

"In a recently conducted study of 1,000 engineers, only three had chosen to enter any of these fields."

Pointing out that most heat-

(Concluded on Page 28, Col. 1)

Coming Soon
Report on Education

"Report on Education," a series of articles soon to start in AIR CONDITIONING & REFRIGERATION NEWS, will examine the entire field of education and training for engineers and field technicians in the industry.

The report has been prepared by Technical Editor Frank J. Versagi, who made contact with engineering colleges, technical institutes, trade schools, and manufacturers' schools, in gathering data on the current status of educational and training opportunities and methods in the refrigeration and air conditioning industry.

Double Pay-Off Helps Dealers Move Coolers

DAYTON — A "late-in-the-season" sales drive, featuring a "double pay-off plan" for dealers, and a somewhat unusual newspaper advertising plan, is apparently helping to move equipment off the retailer's floors, reports Airtemp Div., Chrysler Corp.

In its plan for dealers, Airtemp distributors send out "pay-off" certificates to dealers, who in turn fill them out when they make a sale, and send them to the factory.

When the dealer re-orders to replace the merchandise sold, he gets a credit which reduces his cost. Value of the credit varies with the type of equipment specified in the certificate.

The newspaper advertising campaign being conducted by Airtemp in conjunction with the campaign is being carried in Sunday editions in 70 selected markets, and is unusual in that it covers all the products in the line—from room air condition-

(Concluded on Page 31, Col. 2)

Housing Activity Perks Up In June

WASHINGTON, D. C.—Another all-time record was established by the Federal Housing Administration in June, according to FHA Commissioner Norman P. Mason.

Applications for the insurance of mortgages on one to four-family dwellings covered a total of 90,600 dwelling units. The previous record volume of just over 90,000 units was reported for May of this year.

At the same time, the Veterans Administration reported that applications for G.I. loans numbered 14,652 in June, up 68% over May. Requests for new home appraisals — which precedes loan applications, dropped slightly to 28,391.

Construction starts on V.A. homes reached 8,482 in June as compared with 6,043 in May.

Labor Department said pri-

(Concluded on Page 31, Col. 4)

BEHIND PAGE ONE . . .

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Air Conditioning Helps Transform Dept. Store To Modern Office Center

NEW YORK CITY—Air conditioning played a major role in the transformation of the former Wanamaker department store at Broadway and Ninth St. here into a modern office center that became almost completely occupied with tenants not long after the structure was opened.

Design of the air conditioning for the renovated building required some ingenious planning, because of special problems involved, but satisfactory solutions were worked out in a plan prepared under the supervision of Martin Zacharius and Maurice Benton of M. P. Zacharius and Associates.

The building is now being pointed to as an outstanding

(Concluded on Page 31, Col. 3)

Warranty Funds Taxable, Claims Court Now Says

WASHINGTON, D. C. — Reversing an earlier decision, the U. S. Court of Claims has ruled that the charge for a five-year warranty on refrigerator units is subject to Federal excise tax.

In a suit brought by Frigidaire Div., General Motors Corp., the court held that Frigidaire is not entitled to a refund of some $2.5 million on taxes it paid between January, 1945 and August, 1951 "because the price paid for these warranties was a taxable part of the purchase price of the article sold."

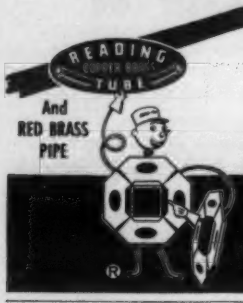
Cooling In the News(stand)

BLIND NEWS DEALER Henry Pisarz operates near Times Square, New York City, the first air conditioned newsstand. A Carrier portable air conditioner cools the 4 by 6-ft. cubicle that claims, too, to be the world's smallest building air conditioned for human comfort. The unit was presented by Carrier to the Lighthouse, the New York Association for the Blind, Inc.

Reentered as second class matter October 3, 1936, at the post office at Detroit, Mich., under the Act of March 3, 1879.
Trade Mark Registered U. S. Patent Office. Copyright 1958, by Business News Publishing Co.

Know where you're heading . . . Insist upon READING!

READING COPPER TUBING truly trouble-free for Refrigeration & Air Conditioning Equipment



Made by Copper Tube SPECIALISTS

READING TUBE CORPORATION
EMPIRE STATE BUILDING NEW YORK 1, N. Y.
WORKS: READING, PA.

Gas-Fueled Air Conditioning Rose 32% During 1957, Lone Star Utility Reports

DALLAS—More than 72,763 tons of gas-fueled air conditioning are currently cooling customers of the Lone Star Gas Co. here, the utility reported recently.

Sales of gas-fueled residential, commercial, and industrial air conditioning during 1957 increased 32% over 1956, the utility said. Through June 13, 1958, residential sales alone exceeded the number of units sold during all of 1957.

Company engineers estimate that Lone Star could add approximately 1 million tons of gas air conditioning installations without taxing system facilities.

To help acquire this additional load, the utility in 1953 set up an air conditioning department headed by W. A. Collins, Jr. Tom C. Bain has since been added as industrial air conditioning specialist.

It also established a special lower summer rate for residential and commercial air conditioning users in 1956.

Lone Star has a continuing program of training for air conditioning sales and installation personnel.

Vornado Sales In Western Area Up 20% Over '57

LOS ANGELES — Sales of "Vornado" central air conditioning units in the Phoenix, Ariz. and Los Angeles areas are up 20% over 1957 figures, H. K. Churchill, western states district sales manager for Vornado air conditioning, announced recently.

Churchill added that Phoenix dealers have ordered four extra carloads of room and auto air conditioners in preparation for a special sales drive planned for the end of July.

On a cooperative basis, Phoenix Vornado dealers have bought seven weeks of saturation radio spots and are running full page advertisements in the *Phoenix Gazette*.

Radio and newspaper tie-ins have also been arranged with John F. Long, home builder, who has scheduled a concentrated promotion for his 2,500-home Maryvale tract.

Added impetus to the sales drive will be given by O. A. Sutton Corp., Vornado manufacturer, by sending in "Miss Vornado" from Hollywood to make TV and radio appearances, tour both auto and home air conditioner dealerships, and tie-in with district promotions.

She will also act as hostess at the Phoenix premier showing of Vornado's new all-electric 5-ton heat pump.

Whirlpool June Cooling Sales 22% over May

ST. JOSEPH, Mich.—Whirlpool Corp. air conditioning division sales to dealers for June jumped 22.5% over May, John A. Hurley, Whirlpool vice president in charge of sales, announced recently.

During the final week of the month, electric refrigerator sales were the highest on record, he said.

June sales of all products to distributors were 30.1% over June, 1957, he added.

William W. Gilmore Dies of Heart Ailment

FREEPORT, Ill.—William W. Gilmore, president of the Micro Switch Co., a subsidiary of the Minneapolis-Honeywell Regulator Co., died July 10 of a heart ailment in a hospital here.

Gilmore was president of Micro Switch since 1941. He was also a vice president of Minneapolis-Honeywell.

LOST
space in your building
FOUND
with

KRAMER
OUTDOOR COMPRESSOR

Why lose dollar-making storage and selling space to house compressors, when you can now use the Kramer Outdoor Compressor? The THERMOBANK COMPRESSOR SYSTEM is factory assembled, tested and run-in; it saves installation time and money.

The refrigeration industry again finds Kramer blazing a new path with its THERMOBANK SYSTEM—the original and only automatic re-evaporating, non-overloading, fastest hot gas defrost system—now engineered to perform unfailingly, not only in a heated space but in any unheated space or outside at any outdoor temperature.

WRITE FOR BULLETIN TC 406A

KRAMER TRENTON CO. Trenton 5, N. J.
45 YEARS OF CONTINUOUS ACHIEVEMENT IN HEAT TRANSFER

Airtemp announces a

NEW PRICE POLICY

Airtemp's double pay-off plan means profitable dealer markup plus lower consumer prices

Now, Airtemp dealers will increase their profits with Airtemp's new Double Pay-Off Plan.

When you sell Airtemp air conditioning or heating, you get paid *twice* — once at the time of sale and once by Airtemp with Airtemp's new Pay-Off Certificate.

The value of your Pay-Off Certificates will depend on the value of the equipment sold, but here's the important thing—use your Pay-Off Certificates just like cash when you order new Airtemp equipment.

Airtemp's Double Pay-Off Plan will help you meet price competition and still keep a profitable markup.

DO MORE BUSINESS WITH AIRTEMP

CHRYSLER

DAYTON 1, OHIO Airtemp

What Do Women Want In Home? NAHB-UICH Study To Find Out

WASHINGTON, D. C.—During the next three months, a giant consumer study of what women want in a new home will be undertaken by the National Association of Home Builders and the recently formed United Industry Committee for Housing.

It leads up to another Women's Conference on Housing, jointly sponsored by the two organizations. The conference will be staged in the National Housing Center here on Oct. 14 to 16.

Participating in UICH are the Air-Conditioning & Refrigeration Institute represented by Public Relations Director Ted Kellogg and the Better Heating-Cooling Council represented by Franklin Greene.

D. L. Chaney, Washington manager of the Portland Cement Association, was elected chairman of the committee, which is composed of a number of associations representing manufacturers of products and materials used in homes.

With the cooperation of local newspapers, NAHB and UICH will conduct contests in approximately 100 cities to select women delegates to the national conference.

Each contestant will be required to fill out a questionnaire and write an essay. Local contests to select delegates will be decided on the basis of the essay.

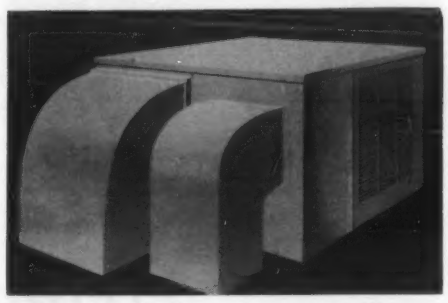
The questionnaires will be tabulated by NAHB on an anonymous statistical basis to get opinions on the houses, components, and services related to the present living quarters of the housewife and what she would like to have in a new home.

New York To Drop Fee On Some Commercial Installations In '59

NEW YORK CITY — After July 1, 1959, no annual permit fee will be assessed against window type air conditioners and water coolers in commercial buildings.

The City Council decided to drop the fee after the Commerce and Industry Association termed the charge "unjustified taxation masquerading under the label of a permit fee."

The city is expected to lose $300,000 a year in revenue from the change.



MATHES packaged air conditioner, which is designed for outdoor or semioutdoor installation, is available in 2, 3, and 5-ton models.

Mathes Packaged Central Units Suited To Outdoor, Semioutdoor Installation

FORT WORTH, Texas — A new series of hermetic packaged central air conditioners for outdoor or semioutdoor installation has been announced by The Mathes Co.

The 5-ton model, which went into production June 15, is the first unit of its size and type to be offered by any manufacturer in this capacity, according to Ed Schwartz, Mathes vice president and director of engineering.

Two-ton and 3-ton models have been in production for about 60 days.

The new series, designated as HAH (Horizontal Air-Cooled Hermetic), includes heat pump models (HAH-HP) as well as models for cooling only.

Being completely self-contained, the HAH models offer the advantage of quick, low-cost installation. The units are shipped from the factory fully assembled, charged with refrigerant, hermetically sealed, and wired for immediate installation.

The only work required is setting the unit in place, connecting it to the duct system, and tying onto the power source.

The HAH and HAH-HP are adaptable to flat roof or ground installation either entirely outdoors or through the wall.

HAH-HP heat pump models have fully automatic heat-cool change-over thermostat, fully automatic fan limit control to prevent any cold air from being discharged when the unit is on heating, and a de-icing switch providing fully automatic hot gas defrost for efficient heating operation at low outdoor temperatures.

Supplementary electrical resistance heating under fully automatic control may be incorporated with the HAH-HP if desired.

HAH cooling only models are equipped with a summer-winter thermostat to provide the user with single control for his cooling and heating systems.

All Mathes HAH and HAH-HP models are completely weatherproofed and will carry the approval of Underwriters Laboratories, Inc., for outdoor installation. Cabinets are 16-gauge cold rolled steel finished in epon baked enamel.

An exclusive feature is the phenolic treated laminated base which provides greater structural rigidity and longer life.

Weisenbach Dies

WAYNE, Pa. — Frederick A. Weisenbach, who supervised the design of the refrigeration and air conditioning of the *S.S. United States*, died here recently. Employed by York Corp., he retired in 1953. He was a member of the American Society of Refrigerating Engineers.

For Your Reprint Copy

"Emergency Diagnosis, Repair of Hermetic Unit Electric Components," by John L. Zant, mail this ad with your name and address to: Air Conditioning & Refrigeration News, 450 W. Fort, Detroit 26, Mich.

Only 25¢ each.

FOR BOTH R-12 and R-22

Use only one water valve

Penn "All-Range" Water Valve Reduces Your Inventory

Easy to adjust with service wrench, not with fingers, thus tampering with adjustment by user is discouraged.

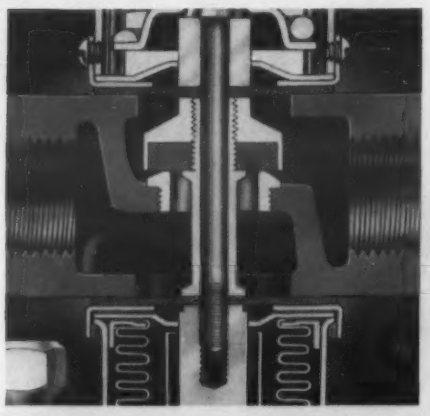
Now, cut your water valve inventory in half! Stock only one model . . . the new Penn 246 "All-Range" water valve . . . it's perfect for *both* R-12 and R-22 service.

This new model has all the superior features of the Penn 246 . . . no valve chatter; no water hammer; no corrosion of sliding parts; easy manual flushing; highly sensitive yet accurate . . . all features which make it *stay on the job longer!* Available in ⅜", ½" and ¾" sizes.

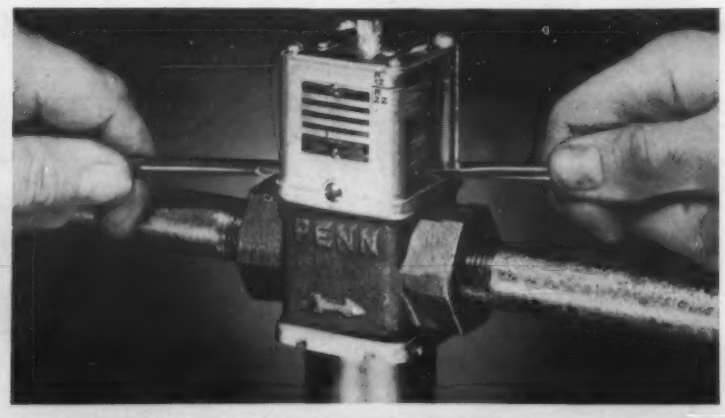
Ask your wholesaler for Penn . . . the refrigeration industry's *favorite water valve.*

PENN CONTROLS, INC. Goshen, Indiana

EXPORT DIVISION: 27 E. 38th ST., NEW YORK, N.Y.



No rust, corrosion and sedimentation. Exclusive design keeps water away from bellows, range spring and sliding parts.



Easy manual flushing after installation . . . 2 screwdrivers, an upward lift and foreign matter is washed away to assure proper valve seating.

AUTOMATIC CONTROLS FOR HEATING, REFRIGERATION, AIR CONDITIONING, APPLIANCES, PUMPS, AIR COMPRESSORS, ENGINES

HOW DOES HE STACK UP AGAINST COMPETITION?

We show an incongruous situation to illustrate the point that you can't accurately judge an athlete or a product on a solo performance. The compressors and condensing units you are buying now *may* be the best in the world . . . and your percentage of line rejects and field returns *may* be as low as you can reasonably expect.

But without some means of product comparison you can only *assume* that you are getting full measure for your money.

We believe that new Bendix-Westinghouse standards of quality control are giving our customers the best performing compressors on the market today . . . units which many customers report have cut old reject rates as much as seventy-five percent!

Only a trial order can set your mind at ease . . . and that's all we're asking for.

Bendix-Westinghouse

EVANSVILLE, INDIANA

A Division of Bendix-Westinghouse Automotive Air Brake Company, Elyria, Ohio
Export Sales: Bendix International, 205 E. 42nd St., New York 17, N.Y.

Product Quieting To Be Noise Abatement Symposium Topic

CHICAGO—Product quieting, one of the topics scheduled for the forthcoming 9th annual National Noise Abatement Symposium, will be dealt with in three papers, it was announced.

These include papers on a new laboratory test for sound transmission through acoustical ceilings by Richard N. Hamme of Geiger & Hamme, noise acceptance criteria for home appliances by Warren E. Blazier, Jr. of Coleman Co., and motor design by R. L. Wall of General Electric Co.

The symposium will be held in Chicago Oct. 9-10. A number of exhibits of products used in noise control and measurement will be open throughout the meeting.

Controls of America Moves Breese Burners Office To Milwaukee

MILWAUKEE—Controls Co. of America announced that the Breese Burners, Inc. sales and field engineering office is being transferred from Columbus, Ohio, to the Controls Co. plant here.

Breese Burners was acquired by Controls Co. last January. Since that time, the sales and engineering activities of Breese have been operated separately from Controls Co.

"Because the problems of applying the burner and controls to an appliance are inherently common," the announcement explained, "it was decided that a more effective engineering application and consulting service could be offered the customer if the burner and control sales engineering operators were integrated.

Robert F. Law will supervise the transfer and will continue to direct the Breese sales and field engineering as a member of the Milwaukee operation, according to the announcement.

Law joined Breese in 1957.

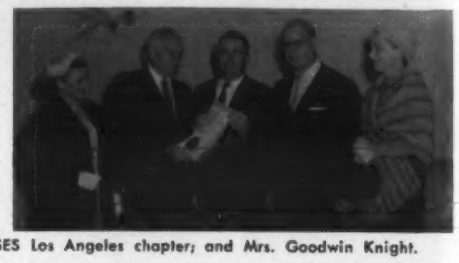
Employment Outlook Reprints Available

WASHINGTON, D. C. — A pamphlet on "Employment Outlook for Refrigeration and Air Conditioning Mechanics" is currently available from the U. S. Government Printing Office here at 5 cents a copy.

It is a reprint from the 1957 "Occupation Outlook Handbook."

It describes employment outlook, nature of work, training and qualifications required, and earnings and working conditions.

Governor Knight Proclaiming RSES Week



HIGHLIGHT of National Refrigeration Service Engineers Society week in California was a proclamation by the Governor. Left to right: Mrs. Jack H. Harris, Governor Goodwin Knight presenting proclamation to RSES regional association President Earl Stookesberry of Inglewood, Calif.; Jack H. Harris, president RSES Los Angeles chapter; and Mrs. Goodwin Knight.

SANTA BARBARA, Calif.— Wide recognition of National Refrigeration Service Engineers week was reported by Earl Stookesberry of Inglewood, Calif., president of the regional association of RSES for the four states of Arizona, California, Nevada, and Utah, at the quarterly regional board meeting here.

Stookesberry reported that due to the work of Joe Sever of Los Angeles, proclamations calling for observance of the week were issued by 28 governors. Included was a proclamation by the Governor of California, Goodwin Knight.

The week was also recognized by President Eisenhower and Vice President Nixon in letters of congratulation.

Dates have been set for the regional association's workshop to be held at California State Polytechnic college, San Luis Obispo campus, Jan. 23-24, 1959.

Third quarterly meeting of the regional association board of directors for the year 1958-59 will be held at the same time.

Choose BOHN Refrigeration Units

Precision-designed and performance-proven to solve your refrigerating problems . . . efficiently . . . economically

LOW TEMPERATURE UNITS
All feature Bohn's unique, hermetically-sealed automatic defrost system . . . *eliminates extra wiring, extra piping, costly control valves.* All with grained aluminum cabinets, rust-proof fittings, life-lubricated motors.

MODEL LC Unit Cooler
For large walk-ins. 6000 to 24,000 BTU/hr. cap. at 10° T. D.

MODEL LM Mullion Lo-Temp
For upright freezers. 1400 and 1900 BTU/hr. cap. at 10° T. D.

MODEL LR Unit Cooler
For reach-ins and small walk-ins. 1000 to 1900 BTU/hr. cap. at 10° T. D.

STANDARD COOLER UNITS
Compact units, all with practical built-in Bohn features, rust-proof fittings and life-lubricated motors, housed in long-life, grained aluminum cabinets. Simple to install, fully tested and warranted.

MODEL HR Half Round
For walk-in coolers. 2600 to 10,800 BTU/hr. capacity at 10° T. D.

MODEL C
For reach-ins. 1000 to 3000 BTU/hr. capacity at 10° T. D.

MODEL UC Unit Cooler
For walk-in coolers. 2600 to 20,000 BTU/hr. capacity at 10° T. D.

MODEL U
For small applications. 850 to 1500 BTU/hr. capacity at 10° T. D.

MODEL UM Mullion Unit
For reach-ins and dough retarders. 1300 to 2300 BTU/hr. capacity at 10° T. D.

MODEL D
For beverage boxes and back bars. 1300 to 2300 BTU/hr. capacity at 10° T. D.

Buy the known line . . . the BOHN line

BOHN

Refrigeration and Air Conditioning Products • Special Heat Transfer Surfaces

Aluminum and Brass Corporation
Betz Division • Danville, Illinois

Walton Laboratories Appoints Lewis as Engineered Sales V. P.

IRVINGTON, N. J. — J. Robert Lewis has been appointed vice president in charge of engineered sales for Walton Laboratories, William Feldermann, president, announced recently.

Lewis, who has been with the company for 11 years, will have charge of all technical and engineered sales of the company, and will spearhead a technical information program to architects and engineers on controlled humidification, Feldermann explained.

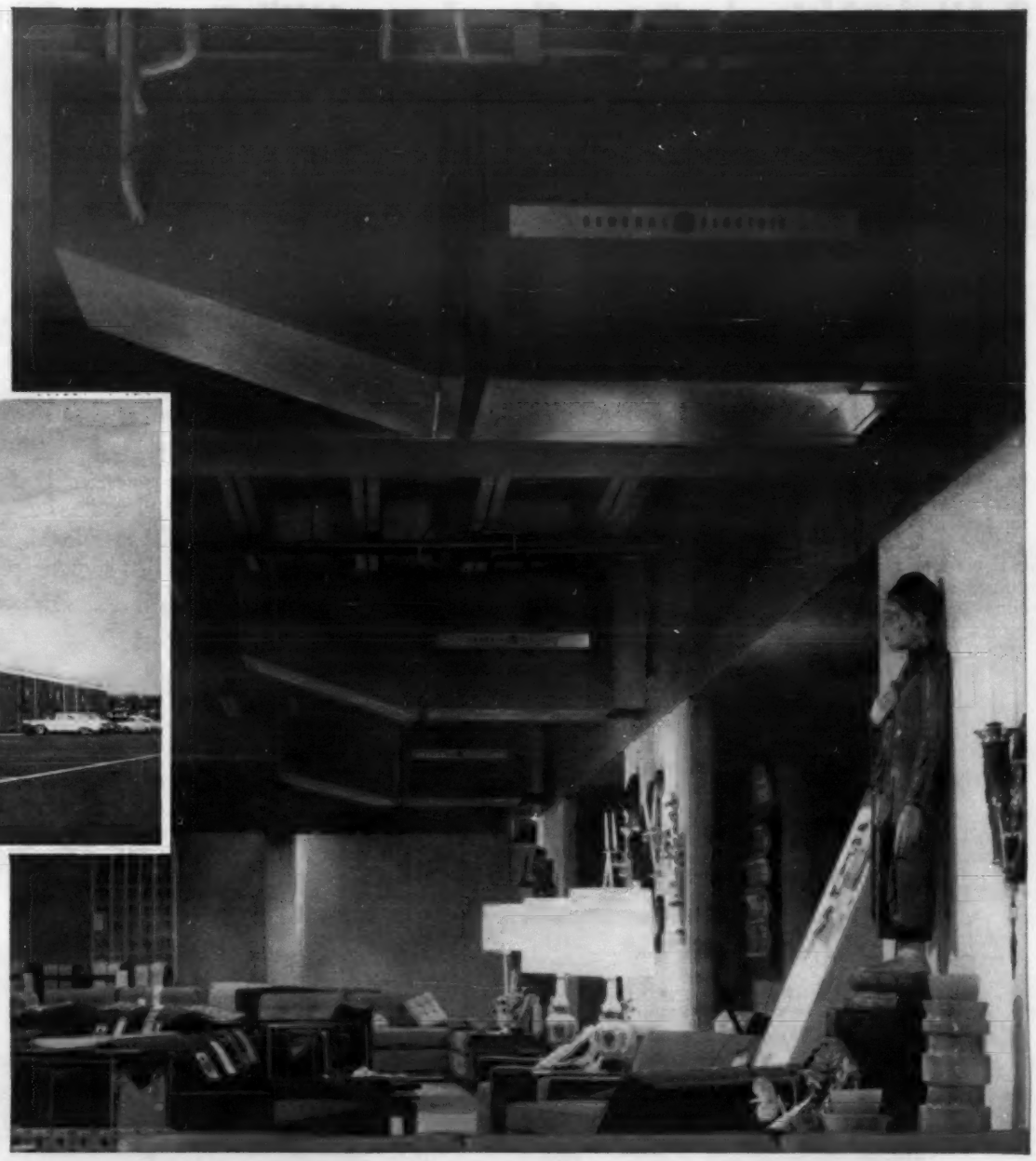
His engineered sales department will work with engineers and technicians of other companies on the application of humidification systems to specific uses. His department will also prepare technical literature and bulletins on humidification.

Union, Employers Must Reimburse 18 Workers For Loss of Pay

SPOKANE, Wash.—The National Labor Relations Board recently ordered a group of employers and local unions here to stop using a discriminatory hiring hall and to void agreements which contain union security provisions not permitted by the Taft-Hartley Act.

Involved were the Plumbers & Steamfitters Locals 44 and 598, the Washington State Association and its member local unions, the Washington State Board of Negotiators and/or Arbitrators, its member employers, employers represented by it, and the Hallmac Construction Co.

Local 598 and the employers board were ordered to reimburse 18 employes for loss of pay due to discrimination. Hallmac, the Washington State Association, and Local 44 were ordered to pay one employe $1,000 for loss of pay through discrimination and expenses caused thereby.



ABOVE: Reportedly the world's largest single installation of ceiling-mounted, self-contained units is used to create an optimum climate for the windowless Dallas Home Furnishings Mart, Dallas, Texas. 222 General Electric packaged units, totaling 1,200 tons, cool or heat 434,000 square feet of sales and display areas in this modern two-story building. Each exhibit area has its own units individually controlled and metered for power and water use. Tenants pay only for the air conditioning they use.

AT RIGHT: Ceiling-mounted units cool or heat exhibit areas but take no valuable floor space. Grille shown at rear of unit connects with a duct, designed as part of the building, to serve as fresh-air ducts and to conceal piping and wiring for the units. Eight roof-mounted fans deliver fresh air to the duct for distribution to display areas. Another set of fans exhausts air through relief grilles placed along walls of hallways and courtyard areas near the ceiling.

How to get maximum flexibility from a 1,200-ton air conditioning system

Cooling needs satisfied by 222 "Freon"-charged package units at Dallas Home Furnishings Mart

An economical and efficient way to get flexibility in an air conditioning system is to use packaged units. An example is the Dallas Home Furnishings Mart, Dallas, Texas—reportedly the world's largest single installation of ceiling-mounted, self-contained units for cooling and heating.

Flexibility was needed at the Mart because 434,000 square feet of floor area is arranged into various sized sales and display areas, each with different cooling requirements. Areas are rented to national manufacturers of home furnishings to show off their lines to buyers from all over the Southwest.

Air conditioning is not needed full time by any of the exhibitors. For one week, twice each year, the Mart is open to show off new lines, and for two days each month it is open for buyers to shop and place orders. At other times most of the space is closed except for a few secretaries or salesmen.

Cooling or heating needs of individual tenants range from high cooling capacity for dissipating heat from a lamp display to a simultaneous need for heating by a tenant near an outer wall.

Careful analysis of these conditions before construction led to installation of a 1,200-ton system of 222 General Electric packaged units. These space-saving, ceiling-mounted units range in size from 3 to 7½ tons. Mounted at about 30-foot intervals, they assure each showroom of at least one unit. Units consist of a sealed refrigerating system for cooling, a blower plus heating coils connected to an outside source of hot water. Tenants control their own units and pay only for air conditioning they use.

Air conditioning systems like this operate efficiently, safely, with minimum maintenance, because major manufacturers specify "Freon" refrigerants for their cooling equipment. To help assure the same safeguarded performance for your air conditioning or refrigerating installations, be sure to specify "Freon" on every order. *E. I. du Pont de Nemours & Co. (Inc.), "Freon" Products Division, Wilmington 98, Delaware. Sales Agents: Ansul Chemical Co., Marinette, Wisconsin; and Virginia Smelting Co., West Norfolk, Virginia.*

ABOVE: After units are suspended from the ceiling, electricity and piping are connected, and units are ready to go. Condensers are cooled by water circulating from a cooling tower serving all 222 units. G-E cooling systems are factory-charged with "Freon" for maximum efficiency and safety.

FREON® REFRIGERANTS

**Freon and combinations of Freon- or F- followed by numerals are Du Pont's registered trademarks for its fluorinated hydrocarbon refrigerants.*

DU PONT
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BETTER THINGS FOR BETTER LIVING... *THROUGH CHEMISTRY*

3 High Altitude Test Chambers Will Test Components for Convair's B-58 Hustler

FORT WORTH, Texas — Three high altitude test chambers for testing component parts of the new supersonic bomber, the B-58 Hustler, are now in the final stages of construction at General Dynamics Corp.'s Convair Div. here.

The test chambers, identified as A, B, and C, will be used for testing aircraft components and assemblies under environmental conditions as high as 100,000 ft. altitude with temperatures ranging from 400° F. to as low as -100° F. Chamber C has a total internal volume of approximately 30,000 cu. ft.

Any of the three chambers can control humidity when required at atmospheric pressure conditions, between 35° F. and 185° F. Relative humidity will be maintained between 20% and 95%.

When rapid changes in temperature and altitude are necessary, Chambers A and B, combined as a single chamber, will be subjected to temperature changes from 70° F. to -85° F. in 30 minutes and from -85° F. to 400° F. in ten minutes, it was reported. This same combined chamber can be evacuated to 40,000 ft. altitude in one minute, 60,000 ft. in two minutes, and 75,000 ft. in three minutes.

Chamber C will be subjected to temperature change from -85° F. to 400° F. in 30 minutes as well as rapid temperature and pressure reduction. These rapid changes will take place with internal loads requiring substantial heating, refrigeration, and evacuation capacities.

Refrigeration equipment serving all three chambers is housed in the equipment building. This three-stage system uses "Freon-22" refrigerant which will cool methylene chloride brine to temperatures as low as -115° F.

The first stage compressor is a centrifugal unit direct driven by a 183-hp. steam turbine, while the second stage centrifugal compressor is driven through step-up gears by a 483-hp. steam turbine. The third stage compressor, a reciprocating machine, is direct driven by a 200-hp. motor.

The "Freon-22" gas is cooled between stages by means of liquid injection. A three-stage flash cooler sub-cools the liquid "Freon-22" before it enters the shell and tube type brine cooler. The refrigeration system is equipped with a pump-out and transfer system and also with a purge unit. The turbines use 190 p.s.i.g. steam and exhaust into a single surface type condenser.

Worthington Corp. supplied all refrigeration equipment including compressors, turbines, and heat exchangers.

"To obtain rapid temperature reduction of the test chambers, cold brine will be stored in a large storage tank," Worthington explained. "This storage tank, located outdoors, will hold 150,000 lbs. of methylene chloride and with the rest of the brine system, will be pressurized with nitrogen to prevent vaporization under higher temperature conditions.

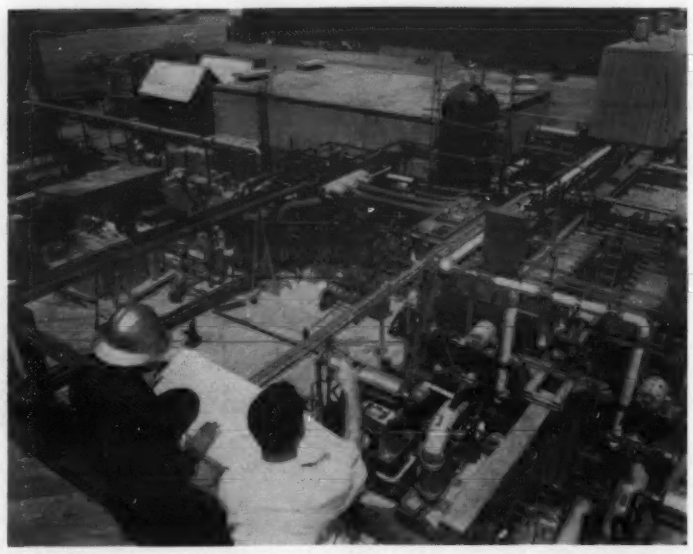
"A brine pump at each chamber will maintain circulation from the brine supply main, through the coils in the chamber, and back to the brine return main. Separate pumps will keep circulation in the supply and return mains.

"In addition, two pumps will maintain circulation through the brine cooler, one of which is for standby. All seven pumps are manufactured by Worthington and equipped with mechanical seals.

"To meet the wide range of heating loads and conditions, each test chamber is provided with two types of heating equipment. Electric radiant heaters, necessary under high vacuum conditions, will also provide close control of chamber air temperature.

"High capacity is accomplished by circulating chamber air through an indirect gas-fired heater located outside the chamber. The heaters, along with fans and connecting piping, may be isolated from the chambers by closing remote-operated motor-driven gate valves. Each chamber is equipped with its

(Concluded on next page)



PREPARATIONS for opening of high altitude test chambers are coming to an end at General Dynamics Corp.'s Convair Div., Fort Worth, Texas. This complex maze of equipment will enable test chambers to test components of Convair's new supersonic bomber, the B-58 Hustler. The chambers will simulate conditions as high as 100,000 ft. altitude with temperatures ranging from 400° F. to as low as 100° F. below zero. Chambers A and B (at extreme far right) when combined as a single chamber, will be subjected to temperature changes from 70° F. to -85° F. in 30 minutes and from -85° F. to 400° F. in ten minutes. Chamber C will be subjected to temperature changes from -85° F. to 400° F. in 30 minutes as well as rapid temperature and pressure reductions.

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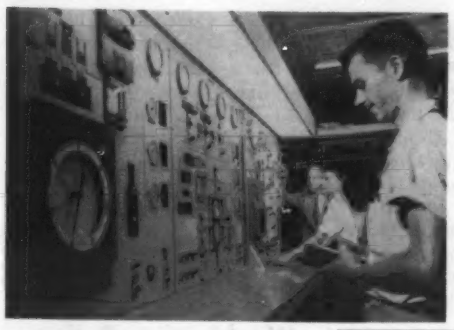

ALL major equipment supplying refrigeration, vacuum, and high-pressure high-temperature air to the three test chambers is controlled from this single main control panel. Each chamber has its temperature, altitude, and humidity controlled from its individual control panel located in the control building adjacent to the chamber.

Test Chambers--

(Concluded from preceding page)

own heater and air circulating system.

"The three test chambers are served by a central Worthington two-stage steam jet evacuation system located outdoors. This vacuum system will be used to simulate altitudes up to 100,000 ft.

"Three first stage ejectors discharge into a 7,500-sq. ft. surface type inter-condenser, while two atmospheric ejectors discharge into a 20,000-sq. ft. surface type after-condenser.

"Two auxiliary atmospheric ejectors, used for very short intervals during rapid evacuation periods, discharge to atmosphere through mufflers without condensing. One auxiliary ejector uses 90 p.s.i.g. steam supplied from an accumulator; the remaining six ejectors require 190 p.s.i.g. steam.

"In addtion to the steam supplied by the accumulator, this system uses up to 83,000 lbs. steam per hour. Eight thousand g.p.m. water from the cooling tower is required for the condensers.

"Serving the test facility equipment is a 10,000 g.p.m. cooling tower. A three cell, induced draft tower of redwood construction includes two Worthington 4,000-g.p.m.-capacity pumps that circulate water through the vacuum system inter and after-condensers, and a Worthington 2,000-g.p.m.-capacity pump that provides cooling water for all other equipment including the refrigeration system.

"Equipment and piping provides each chamber with 1,000° F. air at 300 p.s.i.g. and this high-pressure, high-temperature air system simulates a jet engine bleed. A three-stage horizontal opposed steam-driven air compressor delivers 300 lbs. per minute, which is then heated to 1,000° F. in a gas-fired heater. The air cylinders of the compressor are non-lubricated type using carbon piston rings. The steam drive is compound type using 190 p.s.i.g. steam and exhausting to a surface type condenser.

"A complete automatic control system, including indicating and recording instruments, maintains required temperature, altitude, and humidity conditions. Each chamber will have its operating conditions regulated from individual panels in the control building, situated between Chambers A and B and C. When Chambers A and B are operated as a single combined chamber, the control of Chamber B equipment is transferred to Chamber A panel."

Design, engineering, and construction of this complete project was undertaken by the Arthur E. Magher Co., Inc., of New York City, a company established for many years in the field of mechanical contracting and engineering of special test facilities.

Outline specifications defining construction, performance, and control requirements, and some of the equipment requirements were prepared in considerable detail by Convair's Plant Engineering Dept. at Fort Worth. This department is in charge of the over-all design and construction of the project.

Test Chambers Allow Scientists To Probe Secrets of Body Metabolism

UNION, N. J. — A suite of climate simulating rooms being constructed here by Tenney Engineering, Inc., manufacturer of environmental test equipment, will enable scientists at Lankenau hospital, Overbrook, Pa., to probe more deeply than ever into the secrets of body metabolism, the company announced recently.

The suite will consist of three rooms with minutely controlled temperatures and humidities. Costing $105,000, it will be shipped in knocked-down state for installation in the first floor of a six-story research wing now being erected at the hospital outside of Philadelphia.

The Lankenau suite will be the second, but much bigger, of its kind for the study of metabolic rates in different activities under varying environmental conditions. The information will, it is hoped, lead to a better understanding of the effect of ordinary things like temperature and moisture on chronic diseases, according to Dr. Kaare Rodahl, the hospital's director of research.

The prototype of the chambers being built for Lankenau was installed by Tenney Engineering three years ago at the National Institute of Arthritic and Metabolic Diseases in Bethesda, Md. It consists only of a single 9 by 13 by 8-ft. room.

Lankenau's controlled climate suite will consist of a cold lock measuring 6 ft. 10 in. by 11 ft. 7 in. by 10 ft., a constant temperature room measuring 12 ft. 4 in. by 12 ft. 7 in. by 10 ft., and a temperature control room measuring 15 ft. 9 in. by 16 ft. 5 in. by 10 ft.

The rooms, according to Robert H. Brown, vice president of Tenney Engineering, will be nearly absolutely air tight. There will be a temperature range of 40° to 120° and a humidity range of from 20 to 95%.

The noise level of the rooms will be limited to 50 decibels—about the level of a quiet hospital room—and all rooms will be screened against electrical interference so that delicate measuring apparatus will not be interfered with in any way.

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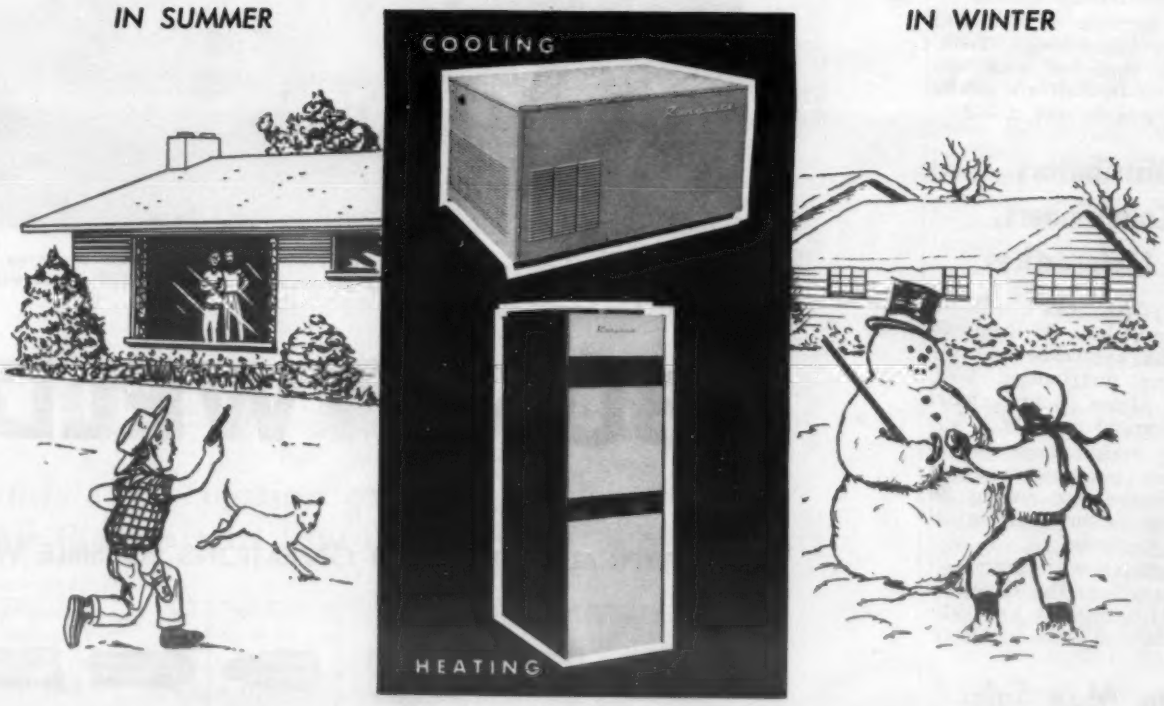
IN SUMMER



IN WINTER

Rangaire All-Weather Air Conditioning Keeps Sales Rolling Year Around

Imagine! No dull season . . . sales growing all year long. It's a dealer's dream come true. And on top of that, Rangaire gives you styles and capacities to fit every installation . . . prices to fit every budget. You'll have open season for sales every day with Rangaire's All-Weather Air Conditioning Systems. Let us tell you how you can become a Rangaire franchise dealer. Write today!

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With Room Units

All Patient Rooms In Philadelphia Hospital Cooled

PHILADELPHIA — Equipping all patients' rooms at Northeastern hospital here with Airtemp "All-In-Wall" air conditioners reflects today's trend to hospital air conditioning in both new and existing plants.

According to the administrator of the 150-bed, 20 bassinette general hospital, and the medical director, Airtemp units were chosen after hospital personnel witnessed the installation of identical units at 2601 Parkway, an apartment building.

As a result of their findings, the hospital's board of directors requested S. S. Fretz, Philadelphia Airtemp distributor, to make a survey of the hospital's air conditioning requirements, and the installation was planned and engineered by Fretz after careful study.

The All-In-Wall units recommended "are of sufficient capacity to enable doors to patients' rooms to remain open at all times," it was pointed out. "The reason for this is twofold: (a) so that patients can be observed at all times by medical personnel; (b) so that hospital corridors can share the benefits of the air conditioning system."

Several sections of Memorial hospital in Chattanooga, Tenn. have been equipped with the new-type All-In-Wall air conditioners, it was further noted.

Gross Distributors Drops Conditioners, Blames Malpractices

NEW YORK CITY — Gross Distributors, Inc. is dropping out of the appliance and air conditioning distribution field, Benjamin Gross, board chairman, announced recently.

Industry malpractices leading to profitless operation was given as the reason for ending 36 years' activity in distribution, according to Gross.

Gross officials will channel all their efforts into the Capehart Corp., which imports and sells a line of British made hi-fi sets.

Wichita May Sales Double Last Year

WICHITA, Kan. — With May sales more than double those of a year ago, retailers in the southeastern Kansas area served by the Kansas Gas and Electric Co. sold 47% more room air conditioners during the first five months of 1958 than in the same 1957 period.

Statistics published by the utility showed 1,405 room air conditioners sold in May and 2,045 for the first five months. This compared to 617 in May, 1957 and 1,390 for the first five months of that year.

Sales of central air conditioners for May totaled 72 units, down from the 103 sold in May, 1957. For the five months, 214 central units were sold in 1958 and 268 in 1957.

Public Demanding BTU/hr. Ratings, ARI Says

WASHINGTON, D. C. — The public is becoming aware of, and beginning to demand, cooling capacity ratings of air conditioners in terms of B.t.u. per hour before they buy, Geo. S. Jones, Jr., managing director of the Air-Conditioning & Refrigeration Institute, said recently.

Letters received by ARI from all parts of the country, clippings of newspaper stories, magazine articles, and editorial comments all point to the conclusion that the American buyer has already learned to inquire into the colling capacity, expressed in terms of B.t.u./hr., before purchasing an air conditioner, he said.

"This is as it should be," Jones added, "since ARI and most manufacturers of air conditioners for homes—both room units and central installations—are pushing the acceptance of B.t.u./hr. ratings, as established by ARI testing and rating methods, as the basis for comparing various units."

While many individuals are becoming aware of the B.t.u./hr. ratings, some retail outlets are still advertising and selling the old description of "tons" and "horsepower," the industry spokesman said. However, letters from prospective purchasers indicate that, in many cases, unless the B.t.u./hr. rating is available, the sale is lost. A typical example of letters received by ARI was quoted to prove the point:

"'The best way to improve business is to find out what the customer wants . . . 'we no longer sell this in yards, the common and usual method of measurement; we now sell this material in miles—what part of a mile do you want?' If everyone sold same in miles, we'd walk out and do without!

"We have walked out of a dozen air conditioning places because they cannot or will not give us what we want to consider for buying—B.t.u. ratings. . . .

"This is purposely written as somewhat of a challenge to you at the institute. Better business is awaiting those who are first to show strength and light in this weak and dark corner. . . ."

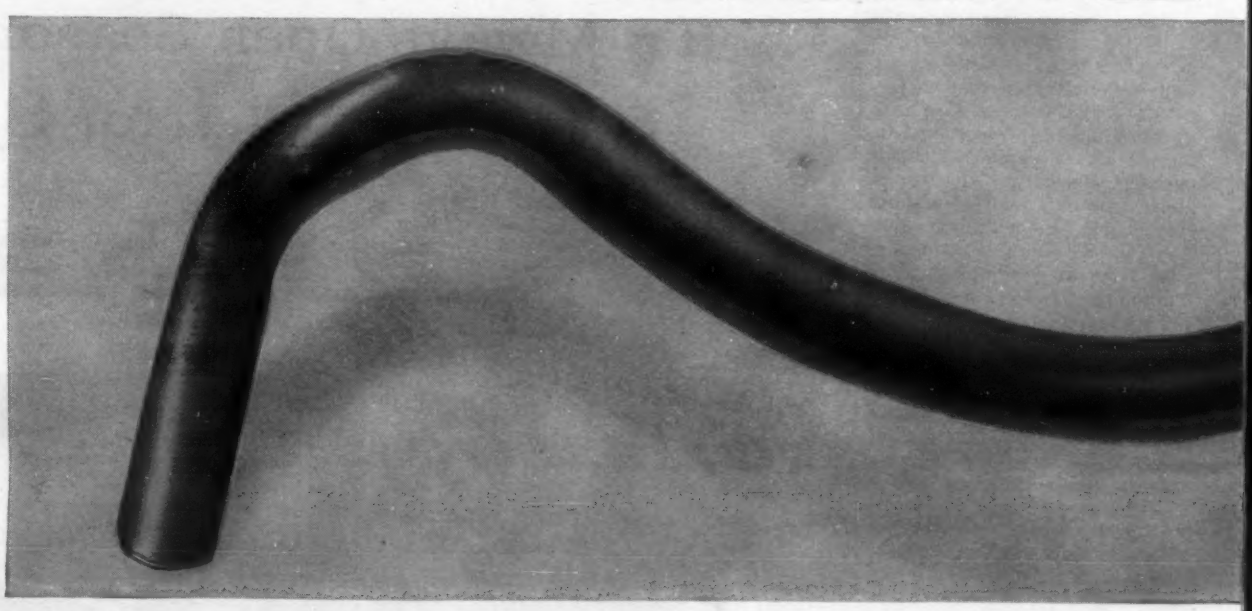
In response to this and many similar letters, ARI has pointed out that B.t.u./hr. ratings *are* available for room air conditioners, under the ARI Standard, and that prospective purchasers should insist upon them.

"In addition, a program is in preparation under which similar ratings, in terms of B.t.u./hr., will become the standard measure for central residential air conditioners, thus giving purchasers of all types of home air conditioning equipment basic measurements upon which to make comparisons among the pieces of equipment offered for sale," it was stated.

Room Unit Sales Off In Washington, D. C.

WASHINGTON, D. C. — Distributor sales of room air conditioners (including 1 hp.) in the Washington metropolitan area in May totaled 2,842, compared with 4,172 in the same month of 1957, the Electric Institute of Washington reported recently.

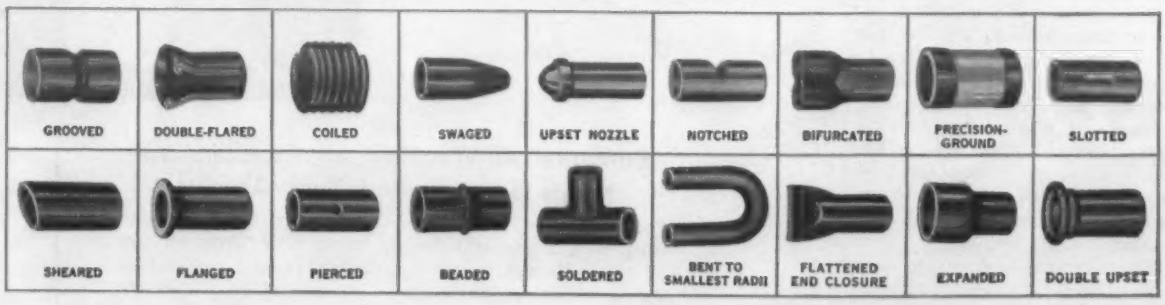
May dehumidifier sales were down substantially, too, totaling 352 against 671 a year earlier.



Multiple-bend discharge tube for refrigeration compressor is fabricated quickly, economically on Bundy-designed fixtures. Seven bends are put into a 7" length of ¼ x .028" Bundyweld in just one semi-automatic operation.

BUNDYWELD...BENT

TYPICAL FABRICATION OPERATIONS POSSIBLE WITH BUNDYWELD TUBING



Shown above are but a *few* of the fabrication operations possible with Bundyweld Steel Tubing. Many of these — and others not shown — were developed through solving a specific problem brought to us by a customer or prospect. At any stage in the development of your product, Bundy invites you to take advantage of this design service.

BUNDYWELD IS DOUBLE-WALLED FROM A SINGLE STRIP

Bundyweld starts as a single strip of copper-coated steel. Then it's . . .

continuously rolled twice around laterally into a tube of uniform thickness, and

passed through a furnace. Copper coating fuses with steel. Result . . .

Bundyweld, double-walled and brazed through 360° of wall contact.

SIZES UP TO ⅝" O.D.

← NOTE the exclusive Bundy-developed beveled edges, which afford a smoother joint, absence of bead, and less chance for any leakage.

eau Rivage Motel Air Conditioning Gives Flexibility, Operating Economy

BAL HARBOUR, Fla.—West-ghouse packaged units—rated 10 and 15 tons—make up the tire air conditioning system of e Beau Rivage, $10 million xury motel here.

The system combines a high gree of flexibility with eco-mical operation, according to estinghouse.

The Beau Rivage is equipped th 12 independent systems at insure adequate air condi-ning in the rest of the build-if one or more of the sys-ns' units are shut down.

Each floor of the motel has a parate air conditioning and ating system and each room equipped with remote air dulators so that guests can oose their own comfort zones. us, all or part of the building can be air conditioned at once.

In addition, public space areas, such as the supper club, cardroom, television theater, and children's indoor play section, have independent units, creating a "true zone system."

The entire system has been engineered so that any requirements are met with a minimum use of the available horsepower, it was stated. All water for the system is fresh, and is recirculated through two cooling towers.

About 40 tons of sheet metal were used to build the duct system with an automatic duct-making machine on the construction site. If all these insulating ducts in the system were laid end to end, they would extend a mile and a half.

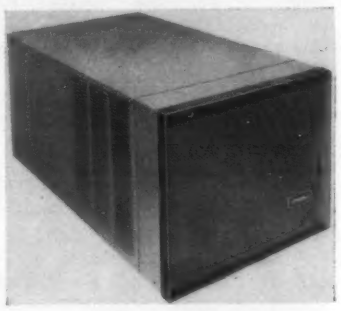
Typhoon Introduces Heat Pump, Horizontal Conditioner

BROOKLYN — A new, compact, self-contained air-to-air heat pump for residential, commercial, and industrial installations has been introduced by Typhoon Air Conditioning Co., division of Hupp Corp.

The company also announced improved models of its self-contained, air-cooled, horizontal air conditioners for commercial or residential applications. They are available in 2, 3, and 5-ton models.

Available in 2, 3½, and 5-ton models, the new heat pump "is a true heat pump with reversing automatically controlled by thermostat," the announcement said. "It is balanced to provide full capacity in either cooling or heating.

"Supplemental electrical resistance heaters are offered to increase heating capacity and permit use of heat pumps where heating requirements are high.



TYPHOON Heatpump.

"The major advantage of Typhoon's heat pump is that it provides conditioned air in all weather in one self-conditioned unit that costs little more than comparable air conditioning units alone. In summer the heat pump filters, cools, and dehumidifies just as efficiently as a single-purpose air conditioning unit. When temperature drops below the comfort level, it cleans and warms the air, automatically."

EASE OF INSTALLATION CITED

Compactness and ease of installation are two other claimed major advantages of the new heat pump. The manufacturer points out that the new unit is adaptable to any type installation suitable for conventional air-cooled air conditioners.

"For example, in a home the unit may be installed through or flush with the attic wall or through the foundation wall with ductwork running under the house in the crawl space or basement," it was pointed out. "In commercial and industrial establishments, a unit may be mounted on the roof, through an outside wall or suspended flush against the ceiling (a space-saving installation particularly appropriate to stores). Size of the units makes them ideal for multiple-unit installations that provide zone control and eliminate excessive ductwork. Units may be used with or without ductwork."

Dimensions of the 2 and 3½-ton units are: height, 24 in.; width, 29 in.; and depth, 49 in. The 5-ton unit is 30 by 36 by 64½.

"Two-stage thermostat control in the 3½ and 5-ton models provides appropriate capacity in both mild and severe weather," according to the announcement. "The first stage provides half as much capacity as the second, which operates only in very hot or very cold weather.

"Units employ over-size hermetically sealed compressors run by 230-volt, single-phase motors. Under standard rating conditions the 2, 3½, and 5-ton units provided cooling capacity of 22,000, 35,000, and 50,000 B.t.u./hr., respectively.

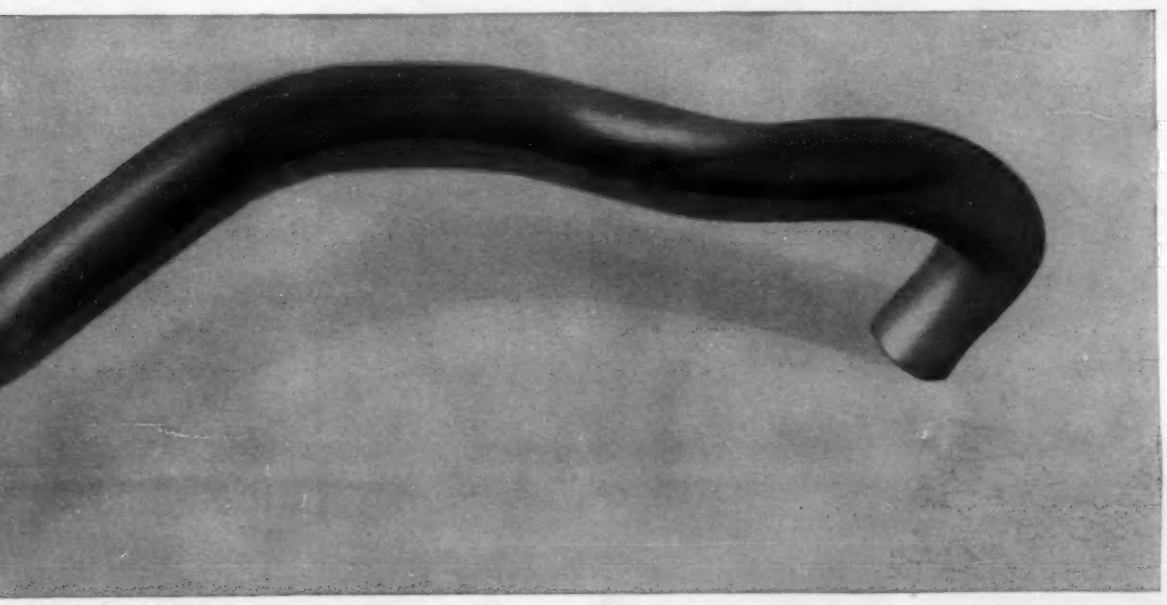
"Two-stage 8, 12, and 16 kw. supplemental heaters are available for use with the heat pumps where heating capacity of the units themselves is not sufficient. With supplemental heaters the 2, 3½, and 5-ton models provide 49,800, 75,900, and 104,500 B.t.u./hr., respectively, under standard rating conditions (70° return air, 45° outside air)."

HEAT PUMP FEATURES OVER-SIZE PARTS

The new heat pump "is ruggedly built with over-size parts that assure high capacity operation under all conditions," the company said.

Compactness and ease of installation are two claimed major advantages of the improved horizontal air conditioner. Two and 3-ton units measure 24 in. high, 29 wide, and 49 deep. The 5-ton model is 30 in. by 36 by 65. They may be installed with or without ductwork. A plenum accessory with an adjustable directional grill is available for free air delivery without ductwork.

"A unique feature that facilitates installation is an air volume control that is set at installation to provide just the right amount of cooled, dehumidified, and filtered air for each application," the company said.



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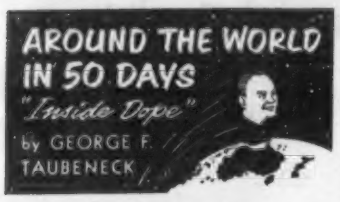
Bundyweld nickel and Monel tubing are sold by distributors of nickel and nickel alloys in principal cities.



(Continued from Page 1, Col. 1)

exciting frontiers for future growth and power.

To be sure, Canada and Australia are affiliated with the U.S.A. in terms of commerce and industry. But they still toast the Queen!

What About London?

The "tight little Isle" itself is scoring—quietly as its wont—a resurging come-back financially. For quite awhile London hasn't been the supreme "banker to the world," as she used to be. But she still does pretty well on that score.

Moreover, her astute financiers and politicians have sloughed off many of her formerly draining global military and economic burdens onto U.S. taxpayers, skillfully and adroitly. Smart people.

In the meantime England itself has become happily solvent again, and incipiently influential. Her foreign exchange and gold reserves have rebounded to a significantly high point. Currently London is running a healthy surplus on its world trade account—thanks to its own internal prosperity, plus cost-drops on imported raw materials.

Moreover, Britain's labor unions are maturely decent and responsible, in contrast to some of ours. Oh yes, they do demand wage-rate increases occasionally. But their askings are for a sensible 2% (!) in this Anno Domini 1958. And seldom do they get even that.

Recently London's bus drivers struck for an advance of a shilling (two bits) *per week*. Not granted.

Refrigeration Gains

Presently in England there's a pleasing, if long overdue, trend toward realization that the domestic refrigerator is a household necessity, rather than a luxury. True, saturation is only about 12%, but recent gains are notable.

Until fairly recently both sales and production have been restricted by a high "purchase tax" on all sorts of refrigerators. Reduction of this tax from 60% to 30% in April of this year has been a great help in selling refrigerators, both domestic and commercial.

It's a good guess that the United Kingdom ranks only tenth on the roster of nations in terms of percentages of homes equipped with refrigerators. In 1957, however, 256,000 refrigerators were sold in the United Kingdom. This constituted an increase of nearly 70,000 over the previous year.

In the first quarter of 1958 sales totaled 57,000—which is a considerable advance on the equivalent figure of 34,000 for the same period last year. It seems obvious that an impressive and significant gain for all of 1958 should be attained easily.

Arthur W. Porter, Frigidaire general manager, predicts a 1958 figure of 350,000.

As evidence of progress, Mr. Porter supplied these figures of household refrigerator sales within the United Kingdom for the last seven years: 1952, 74,000; 1953, 113,200; 1954, 170,000; 1955, 213,500; 1956, 188,000; 1957, 256,000; 1958, 350,000 (estimated). Gas-operated refrigerators represent approximately 10% of the total.

The U.K. has some 16 million homes, 95% wired. With 12% saturation, one can see the tremendous potential.

To the export market more than 100,000 domestic refrigerators were shipped by British manufacturers last year. Comparable figure for the first quarter of 1958 is approximately 33,700.

British-made domestic refrigerator sizes chiefly fall within the range of 1½ cu. ft. to 4½ cu. ft. capacity. Of these, English demand is biggest for the littlest. Larger sizes (up to 8 cu. ft.) are turned out for export.

Two factors are responsible for small model popularity locally: (1) cost, particularly in view of the 30% tax plus high down payments; (2) suitability of midget boxes to the tiny kitchens in those relatively small houses and flats in which English people dwell.

Approximately a dozen brands are produced, best known of which are Frigidaire, Prestcold, Kelvinator, Hotpoint, Electrolux, Lightfoot, Astral, G.E.C., Bosch, and Alaska.

Commercial Refrigeration Growing

In the commercial refrigeration field, manufacturers' sales totals are best assessed on a financial basis. Equipment itself varies considerably, hence defies classification on a unitary basis (the stuff is hand-tailored). And manufacturers don't reveal their own unit production figures.

Last year, it is estimated on excellent authority, 12 million pounds sterling worth of commercial refrigeration equipment was produced and sold in the United Kingdom.

For the first quarter of 1958 sales of more than three and a quarter million pounds sterling were registered by British commercial refrigeration organizations—an interestingly rising curve—according to C. M. Marks of Hussmann British Refrigeration Ltd.

This represents genuine progress, because British butcher shops still are open-air, open front; and the British housewife shops every day for her smidgen of imported meats and vegetables.

Export bite of this commercial refrigeration total, incidentally, amounted to a little over one million pounds. You

(Concluded on Page 15, Col. 1)

This motor can drive anything...almost

This squirrel cage, open frame, integral horsepower Century Electric motor works fine on dozens of applications. You'll find it giving dependable low-cost service on blowers, fans, pumps, lathes, drilling machines and grinders. But . . .

It can't do everything. There are many applications where it won't give good results. That's why you can't use just any motor on your equipment. You need the right motor. The motor that gives you the right combination of torque, horsepower, acceleration and efficiency for you to get top performance from your equipment.

Century Electric can help you get that right motor. Here's why: Century Electric sales engineers are motor experts. They know motors and drive problems inside and out because they think, sell and apply motors and nothing but motors. They can sit down with you and give you on-the-spot answers.

Over 10,000 types of motors are available from Century Electric. There is one for every type of application and for any kind of operating condition—dusty, corrosive, explosive or moist. Century Electric sales engineers will help you select the right one. They don't have to rely on only a few types, like this standard squirrel cage motor, to do everything.

For more than a motor—for help in selecting the right motor for your application, just contact your nearest Century Electric Sales Office or Authorized Distributor. A Century Electric sales engineer will be glad to help you.

CENTURY ELECTRIC COMPANY

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Century

58-27

the quality tells . . . the quality sells

JANITROL AIR COOLED

packaged air conditioner

Flexible and compact—
fastens to ceiling or
stands upright on floor . .
adaptable for duct system.

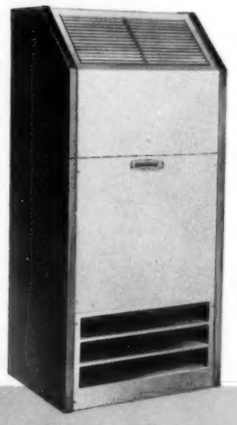
Easy solution to a wide range of residential and commercial cooling problems . . .

new JANITROL COMPACK

"packaged" waterless cooling conditioner

This versatile new cooling conditioner lends itself to an exciting variety of cooling applications . . . meets your need for maximum cooling efficiency in little or no floor space at all!

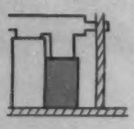
It is designed for free air discharge or use with a duct system . . . may be suspended overhead or positioned on the floor. *Waterless* operation assures quieter, thriftier operation—establishes a new concept of cooling performance. The complete refrigeration assembly is housed in a remote air-cooled unit that's engineered for comfort-cooling with outside air temperatures to 125° F.



For your next residential or commercial job, provide controlled, high-efficiency cooling free from objectionable noise and drafts with the Janitrol Compack . . . one of Janitrol's complete line of conditioners for cooling and heating-cooling applications. Ask your Janitrol representative for full details.

Janitrol "Compack" in parallel with warm-air "up-flow" furnace completes a year 'round comfort system.

In basements with low headroom, "Compack" saves space—may be suspended from joists and utilize existing warm air ducts through a by-pass system.



Janitrol "Compack" blower coil unit with up-flow furnace in first floor closet or utility room.

"Compack" installed overhead in an office. Whisper-quiet, it never intrudes to disturb busy people.

Janitrol "Compack" in attic—cools entire house through small ducts feeding diffusers near ceiling of rooms below.

"Compack" feeding a duct system in modern store. Several "Compack" units can be combined to meet a variety of cooling needs—provide zone control where desired.

"Compack" installed upright on the floor in restaurant. Draftless, free-air discharge.

JANITROL WIN-SUM-MATIC

Year 'round conditioner

Combines thrifty gas heating, waterless cooling in little as 3-3/5 sq. ft. of floor space. Famous 20 year warranted Dura-Tube heat exchangers. Unique by-pass gives correct air flow for heating and cooling without seasonal adjustments. Air cooled Pride O' Yard unit is low, sleek, efficient . . . ADD-ON cooling option—install for heating only, add cooling later. Upflow and downflow models, 80,000 to 200,000 btu./hr. (to 120,000 on down flow) heating, 22,000 to 76,000 btu./hr. cooling capacities*.

SRA add-on cooling

Adapts most any warm air furnace for thrifty, efficient central cooling. Cooling coil mounts in duct, beautiful air cooled Pride O' Yard unit goes outside. Powerful, quiet performance with outside temperatures to 125° F. Easy to install. Waterless operation eliminates plumbing, sewage, water supply problems. 22,000 to 76,000 btu./hr. Capacities*.

Gas-fired Duct furnaces

Designed for installation in a duct where the air is circulated by a separate blower. Especially adaptable for industrial heating applications in combination with cooling. DUCT Series 55 in five sizes from 85,000 to 225,000 btu./hr. Series 75 in sizes 200,000 and 300,000 btu./hr. may be combined to provide unlimited capacity range.

CAPACITIES*

SRA-7—22,000 btu.
SRA-9—35,000 btu.
A-401 and 403—47,500 btu.
SRA-11—58,500 btu.
A-603—76,000 btu.

*95° F. Dry Bulb air entering condenser, 80° F. Dry Bulb, 67° F. Wet Bulb air entering evaporator. approximately 400 CFM per 12,000 btu.

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Also Makers of Surface Industrial Furnaces, Kathabar Humidity Conditioning, Janitrol Residential Heating and Cooling Equipment

(Concluded from Page 12, Col. 5)

can see that Britain is on the move in the commercial refrigeration business.

In terms of commercial compressors shipped abroad, the ratio is approximately 50% of the total produced in the U.K.

Industrial Market In the Empire

British industrial refrigeration and air conditioning equipment (from 10 hp. upwards) attained a total manufacturer's sales figure of well over four and a half million pounds sterling last year.

Almost one and a half million pounds of this amount was shipped overseas to the "empire."

A round dozen manufacturers turn out machinery of this size, much of it for marine installation. Very little for air conditioning.

For the first quarter of the current year, 1958, English industrial refrigeration and air conditioning sales totaled one and a half million pounds—with the export proportion standing at better than half a million pounds sterling.

Equipment was shipped to South Africa, India, Australia, New Zealand, Canada, Ireland, Sweden, Holland, Belgium, Italy, and elsewhere.

Progress here, too, as you can notice.

Prestcold Is a Leader

Prestcold Div. of Pressed Steel Ltd., and Frigidaire Div. of General Motors Ltd., probably are the biggest refrigeration manufacturing firms in England.

In terms of total production *of all types* of refrigeration equipment, Prestcold has held an eminent position for quite a few years. This concern operates four factories in England which are equipped with modern machine tools and some automation, plus Copeland-licensed "know-how."

Incidentally, "Dope's" old and good friend in Detroit, lively septuagenarian Ed Klee, is liaison-man between Copeland and Prestcold.

As suppliers of refrigerating machinery to The Crown, Prestcold proudly displays a Royal Warrant of Appointment to both Her Majesty the Queen and Her Majesty Elizabeth the Queen Mother.

That's about as high as you can ascend in England, in terms of commercial prestige.

Among Prestcold's products are walk-ins, reach-ins, self-service display cases and counters, fish cabinets, domestic refrigerators, plate coils, unit coolers, defrosting devices, frozen food cabinets, ice cream cases, home freezers, and water coolers—all powered by Copeland units manufactured under license.

On its part, Frigidaire regularly supplies one third the domestic and commercial refrigeration turned out in the United Kingdom, according to General Sales Manager Geoffrey Worssam.

Alfred Tack, Salesman

Tack Air Conditioning Ltd. of London is an organization after old One - Foot - In - the - Door's heart. It employs 150 door-to-door salesmen *who sell directly* to shops, offices, and factories.

Moreover, Alfred Tack himself has written three books on salesmanship, including "Sell Better—Live Better." He presented "Dope" with a copy of this volume, and we'll review it at a later date.

The Tack organization manufactures a line of small air conditioning units, filters, ozone generating devices, kitchen fans, odor removers, industrial unit heaters, ventilating systems, and industrial air handling equipment.

And, thanks, to their direct-selling methods, they're tops in the air moving business over there. Note, we didn't say "air conditioning."

Air Conditioning?

England is a chilly, foggy country. Thermometer seldom rises above 80°. Average summer temperatures: 55° to 67°. Thus it happens that the Tack organization sells more filters and ventilating systems than it does true air conditioning equipment (refrigerated).

"Rarely," testify both Mr. Tack and Frigidaire's Arthur Porter, "does England experience a year in which more than a dozen days are uncomfortably warm."

Residential air conditioning is *nil* unless you consider kitchen ventilating fans to be "air conditioning" — which the Tack people do. In this field their volume is handsome.

Luxury hotels and restaurants, where the "people load" is concentrated, occasionally do install *refrigerated* commercial air conditioning.

Industrial and commercial air conditioning is produced in England—both for export and local consumption—by Carrier, Temp-air, West Tool, Lee & Biddle, and Temperature Ltd.

Tecumseh compressors (manufactured under licensing agreement) power most of those jobs which require cooling. There aren't many such installations in England itself.

Practically all of this big equipment is exported or installed on luxury liners (passenger ships for the tourist trade).

Bits and Pieces

Dunham-Bush Ltd. of London produces heating devices, Inner-Fin water chillers and heat exchangers. In addition to selling its products to British industries and commercial establishments, Dunham-Bush exports water chillers to oil drilling and refining outfits in the Middle East.

Charles F. Assheton and J. S. Cohen, our informants, foresee a tremendous potential for Heat-X equipment in the areas they serve.

Self-service supermarkets are burgeoning in the United Kingdom nowadays, somewhat to the surprise of oldtimers in the trade. Packaged frozen foods and ice cream suddenly have "arrived."

Prominent supplier of refrigerated display cases (and walk-in coolers) to this growing market is the Smithfield Refrigerator Co., Ltd., of London (McCray).

According to W. Horace Partridge, managing director of this firm, the "Smithfrige" line of commercial refrigeration cases achieved a sales volume of 240,000 pounds sterling last year.

Are You Paying Premium Prices For Your Pipe Wrapping?

Now...cut costs, reduce inventories and *profit* more with the one standard insulation that fits every pipe and fitting, meets every service requirement!

THREE INSULATING BARRIERS in
NO Drip TAPE
1. OUTSIDE
Rough surface prevents free circulation of moisture-filled air—creates dead air barrier.
2. ¼-INCH THICKNESS
Built-in moisture barrier assures utmost insulating efficiency.
3. INSIDE
Dead air is trapped between "corrugated strands", forms added insulation barrier.

NoDrip Tape means more profit, less work on every job . . . saves you time, labor, material. NoDrip Tape eliminates most multiple wrappings needed with thinner wraps . . . inferior wraps.

Why pay more when you can buy the handy 16 foot roll of ¼" thick NoDrip Tape at less than half the cost of a roll of ordinary ⅛" wrapping...and *far* below the cost of pre-formed foam cellular insulations?

Next time an equipment cold line job calls for *permanent* protection against condensation drip, "sweating" or frost, insist on using NoDrip Tape. Stops rust and corrosion, too . . . holds temperatures more constant and increases the efficiency of the cooling equipment.

NoDrip Tape is pliable, cork-filled and completely self-adhering. Easy to work with . . . forms an air-tight, 100% vapor and moisture proof jacket. Needs no tools, vapor seals, fasteners, brads or adhesives.

NO DRIP PLASTIC COATING... PROTECTION FOR BIG AREAS

For large pipes, tanks, air ducts, we recommend NoDrip Plastic Coating for permanent protection from condensation, rust and corrosion. Another fine Mortell refrigeration product, NoDrip can easily be applied by brush or trowel to metal, concrete, brick, plaster, tile or composition surfaces.

Easier to Apply...
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J.W. Mortell COMPANY
Makers of Mortite Caulking Cord and Mortite Caulking Gum

Gas Air Conditioning Gains In All Sizes Predicted at Joint ASHAE-ASRE Conference

MINNEAPOLIS—"The future of gas for air conditioning looks much brighter than the past," G. B. Priester of Baltimore Gas and Electric Co. told the joint conference on "heat operated refrigeration and air conditioning" held here by the American Society of Refrigerating Engineers and the American Society of Heating and Air-Conditioning Engineers.

Following Priester's general remarks, three other speakers reviewed: (1) recent developments in residential gas air conditioning, (2) large absorption machines, and (3) steam turbine systems for driving big centrifugals.

Noting that both gas utilities and combination gas and electric utilities had become greatly interested in gas air conditioning, Priester revealed that sales of this equipment through May were up 400% over 1957.

From the utility standpoint gas air conditioning is highly desirable because it is not added to an existing peak load, Priester pointed out, adding that the electric power needed for blowers, controls, etc., on a gas system doesn't usually require any additional utility investment.

Although the conference chairman, W. L. McGrath of Carrier Corp., had remarked that "drastic changes" in fuels may be expected sometime, Priester said present gas reserves were estimated at 246 trillion cu. ft. and that reserves discovered last year greatly exceeded consumption.

Equipment, Operating Costs Compared

As for comparative costs of gas and electric air conditioning, the 3½ and 5-ton gas units do cost more than electric units, but the over-all costs in the large sizes are often very little different, according to Priester.

"Operating costs for residential air conditioning are not too important, certainly in the northern parts of the country."

He cited some operating cost figures for the Arkla-Servel residential gas absorption unit (neglecting the costs of water and operating a cooling tower) as compared with an electric air-cooled residential unit:

Electric power at 2½¢ per kwhr. is equal to gas at 12.9¢ per therm, electricity at 2¢ per kwhr. equals gas at 10.3¢ per therm, electricity at 1½¢ per kwhr. equals gas at 7.7¢ per therm.

(Priester also summarized the gas industry's promotion plans for air conditioning, which had been detailed in a special article appearing in the June 9 and 16 issues of AIR CONDITIONING & REFRIGERATION NEWS as had many of the comments made by the second conference speaker—Robert B. Smith, manager of air conditioning research for American Gas Association.

(At this ASRE-ASHAE joint conference Smith reviewed current research projects on residential gas air conditioning, largely repeating the same paper he delivered recently at an AGA conference in Cleveland. It was from the latter talk, in fact, that much of the research data was gleaned for the NEWS article cited above.)

Gas Companies Plan Special Cooling Rates

"Nearly all gas companies have, or will have, special rates for air conditioning," declared J. F. Moore, Lone Star Gas Co., Dallas. Discussing large absorption systems, Moore devoted his talk mostly to illustrations of various such installations.

Increasing sales of the large absorption machines were predicted by Moore, who explained that up to now this type system was excluded from virtually all government installations because only one make—Carrier—was available.

York's entrance into this field will permit the minimum of two bidders required for most government work, he said. Trane also plans to have units on the market soon, Moore added.

There has also been a sharp growth in steam-powered air conditioning in the past 12 years, indicated B. A. Dmitrieff, senior engineer, Consolidated Edison Co., New York City, who devoted his talk largely to steam turbines for driving centrifugal compressors.

Turbines, he explained, are generally said to be the ideal drive for centrifugals, assuming that the over-all price is competitive.

The turbine-centrifugal combination, he emphasized, is exceptionally good for partial load conditions, and in New York City on the lines of Consolidated Edison, steam turbine operating cost rates are less than steam absorption or electric drive.

On large applications where annual operating costs are sufficiently large to warrant it, the steam turbine drive should be included in careful study which precedes design and selection of equipment, Dmitreiff urged.

Tecumseh engineering VISION

37 MILLION COMPRESSORS IN THE FIELD

brings you an *entirely new line* of cost-saving

TINY-T Compressors

OVERALL HEIGHT REDUCED 1 1/16"

WIDTH REDUCED 1½"

DIAMETER REDUCED 2"

COST REDUCED 5 TO 15%

WEIGHT REDUCED 10 TO 16 LBS.

With the new Tecumseh T-line, our customers now have the widest flexibility available in the design of their machine compartments. Because the price and capacity of each TINY-T matches a corresponding Pancake model, the manufacturer can choose whichever meets his requirements . . . low headroom or slim front-to-back dimension. Five models are offered for freezer and domestic refrigerators from 1/6 through 1/3 HP, and two models for high temperature applications.

You earn important savings with a TINY-T model compressor . . . less cost, less weight, less size than previous single cylinder internally spring mounted compressors. Cost savings will run between 5% and 15% depending on the parts supplied. 10 to 16 pounds less weight means your freight costs will drop substantially. This new TINY-T line of compressors is just one more example of Tecumseh engineering VISION—Why not turn it to your use?

HIGH TEMPERATURE MODELS
Model T53 — (1/5 HP) 2100 BTU
Model AT4C — (1/4 HP) 3175 BTU

LOW TEMPERATURE MODELS
Model T63 — (1/6 HP) 525 BTU
Model AT5C — (1/5 HP) 850 BTU
Model T55 — (1/5 HP) 645 BTU
Model AT43 — (1/4 HP) 1000 BTU
Model AT35 — (1/3 HP) 1250 BTU

Capacities Under A.S.R.E. Test Conditions:

	Low Temp Units	High Temp Units
Condenser cooling water temp. In	75°F.	75°F.
Condenser cooling water temp. Out	85°F.	95°F.
Refrig. vapor to compressor	65°F.	65°F.
Ambient temp.	90°F.	90°F.

Heat Exchanger not used — Saturated Refrig. Vapor Temp. + 50° to — 40°F.

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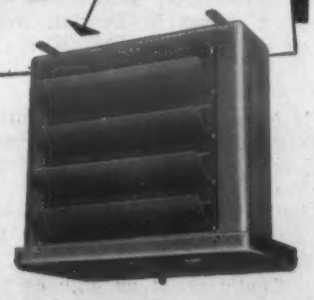

LARKIN HUMI-TEMP UNIT

For clean, smart lines, satin-smooth finish, harmonious color and overall good looks—Larkin leads. Behind this beauty is the quality and performance that keeps Larkin out in front!

Manufacturers of the original Cross-Fin Coil • Humi-Temp Units • Frost-O-Trol Hot Gas Defroster • Air Cooled and Evaporative Condensers • Cooling Towers • Air Conditioning Units and Coils • Direct Expansion Water Coolers • Heat Exchangers

LARKIN COILS

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Holly-General 'Covers All Bases' In Drive In So. California

PASADENA, Calif.—A package promotion for residential air conditioners that "covers all bases" is getting a tryout this year among dealers for Holly air conditioners in the southern California area, reports Charles Martin, advertising and sales promotion manager for the Holly-General Co.

These are the elements of the "all bases" program:

1. Mailing of 1,000 4-color consumer brochures for each participating dealer, in a 3-piece series.

2. Radio spots and newspaper advertising that will be geared to weather conditions that are favorable to a selling push.

3. Hawaiian Breeze sales contest in which top prizes for dealer-salesmen will be all expense paid trips to Hawaii. There will be monthly prizes also.

4. Consumer contests, which will enable them to win back the cost of their air conditioner.

5. Other pertinent material, such as wall charts, technical literature, and operating instructions manuals.

Martin said that the campaign might be extended to other geographical areas, depending somewhat upon the results obtained in southern California.

The 1958 Holly line of central residential air conditioners, consists of five sizes of units in capacities ranging from 22,000 to 60,000 B.t.u., and available in vertical flow, counterflow, and horizontal flow models.

A design feature of the Holly line is the inclusion of diaphragm rupture type valves on the evaporator and condensing units, which simplify the installation of factory charged and dehydrated refrigerant lines.

Forms Warren Mfg. To Make Home Cooling Units for Florida Area

FT. LAUDERDALE, Fla.—A newly-formed firm, Warren Mfg. Corp., is now producing residential air conditioning equipment for the Florida market in its plant at 1359 SW 21st Terr., it has been announced.

The concern is headed by Frank Reed, who has been active in the air conditioning and refrigeration industry for 22 years. For 12 years, he was chief installation engineer for York Air Conditioning Corp.

Reed said the new firm has signed agreements with Florida Gas Equipment Corp. for installation of the Warren equipment in Ft. Lauderdale, Miami, Delray Beach, and Cocoa.

Norman Kent Honored

CHICAGO—Norman W. Kent, manager of the Chicago district office of du Pont's "Freon" Products Div., recently completed 25 years with the company. Members of the division honored him at a surprise dinner party here.

999 Patrick Air Force Base Homes Get Heat Pumps

PATRICK AIR FORCE BASE, Fla.—Front door keys to the first two air conditioned homes of the 999-unit Capehart housing project to be completed here were officially turned over to the two occupying families by Major General Donald N. Yeates, commander of the Air Force missile test center.

Patrick Air Force Base is at the southern end of an 18-mile spit of land near Cocoa, Fla. At the northern tip is Cape Canaveral, where space rockets and ballistic missiles are launched.

The two and three-bedroom homes are cooled and heated with General Electric "Weathertron" heat pumps. The compressor - condenser unit is mounted outside at the rear of the house and the evaporator unit is tucked above a small closet.

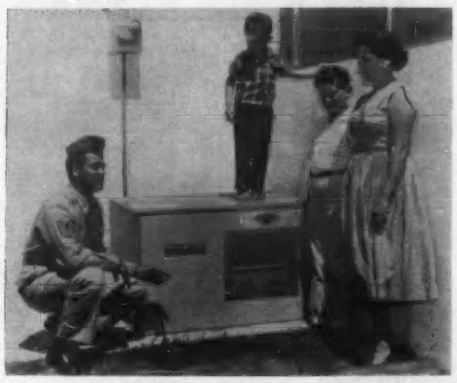
Norman H. Giller is architectural engineer for these 999 Capehart homes with heat pump air conditioning as well as a similar 1,254 Capehart housing project, also with heat pump air conditioning, at Strategic Air Command's Homestead Air Force Base, Fla.

Giller said that these homes represent a high water mark for the armed services toward better living conditions for important technical personnel fully commensurate with recommendations of the special Cordiner Manpower Committee.

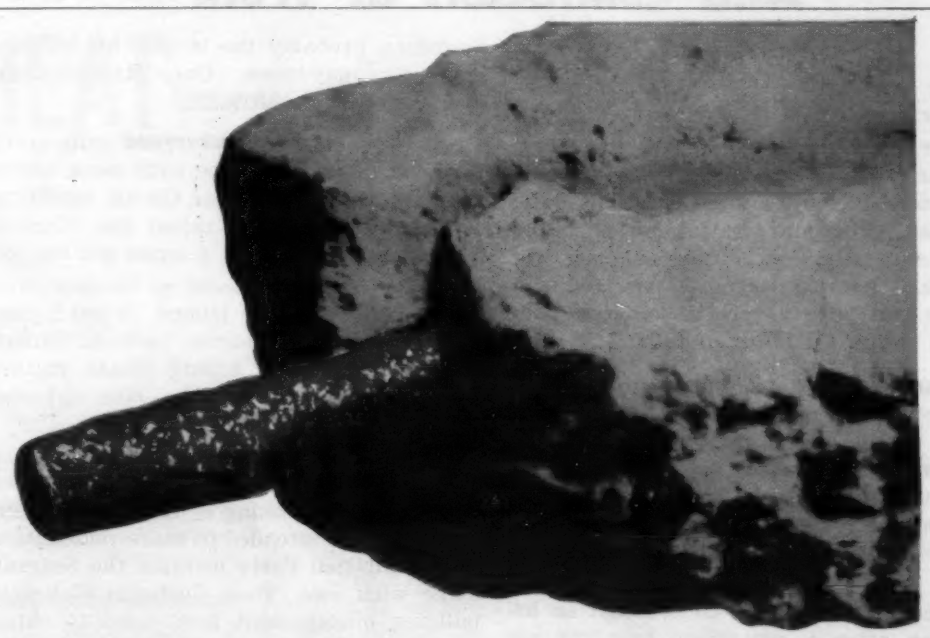
Air Force authorities point out that high temperatures and high noise levels prevailing at their bases make it necessary to live in air conditioned homes since windows must remain shut.

Air conditioned homes are also conducive to relaxation and uninterrupted rest and sleep, necessary to missile technicians who work long and irregular hours especially when count-down is in progress, it was explained.

Air Force officials further note that when year-round cooling and heating is initially provided for the homes of servicemen and their families, proper electrical wiring is planned and installed. Lower costs are thus maintained by the Armed Services.



ONE of the first families to move into the 999-unit Capehart housing project at Patrick Air Force Base, Fla. is Master Sergeant George H. James with his family. He is shown explaining the working principles of the new 2½-ton General Electric Weathertron heat pump. A 2-ft. by 2-ft. enclosure is the only part of the heating and cooling mechanism installed in the home and located at the top of a closet.



THINK YOU HAVE FLOW PROBLEMS?

What about the craftsmen who built the great pyramid for the Egyptian Pharaoh, Cheops, and fashioned copper into pipe to convey water to the royal bathing pool? Above is a remnant of this pipe—buried for centuries—that was found some time ago, still in excellent condition. Now, 5400 years later, modern science, technology and engineering have made remarkable progress in solving flow problems of copper tubing. Especially at Kensico. We scientifically *clean*, *deburr*, and *Flow Test* all Restrictor Tube to customers' exact specifications. Why not let us help solve *your* flow problems? Write Kensico today, Dept. ACN-3, for free copy of our new 16-page, illustrated booklet, "The Story of Kensico Tube."

All Kensico's plug-drawn Restrictor Tube undergoes rigorous Flow Test. It is then cut to size, *plastic-capped*, and shipped in wooden cases.

After final cleaning and inspection, 10,000 feet of Kensico's Capillary Tube is coiled on reel to *customers' specifications.*

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"A newspaper conducted on the true and natural principles of such a publication ought to be the register of the times, and faithful recorder of every species of intelligence. It ought not to be engrossed by any particular object, but, like a well-covered table, it should contain something suited to every palate."—*John Walker.*

They'll Do It Every Time

by

Jimmy Hatlo

WHEN YOU WANT SOMETHING FREE YOU COME TO ME! BUT WHERE DID YOU AN' YOUR CRUMMY TEAM BUY YOUR BASEBALL SUITS? AT THE CUT-RATE JOINT OVER IN HORSE-CHESTER! DIN'TCHA EVER HEAR OF LOYALTY? SHOP WHERE YA LIVE?
LISTEN TO WHO'S PREACHIN'! SHILLABER EVEN GETS HIS HAIRCUTS OUT OF TOWN AT THE BARBERS' COLLEGE...
SHILL'S THE GUY WHO TOUTS EVERYBODY ON FOREIGN BIKES--HE MAKES MORE DOUGH ON 'EM....
MISTER SHILLABER-KIN I HAVE A CATALOG? I WANT TO MAYBE GET A NEW GLOVE...
YEAH--GET A LOAD OF THIS 'FISHIN' ROD--MADE IN JAPAN...
LOYALTY COSTS TWENTY PERCENT-- SHILL IS THAT MUCH DEARER THAN EVERY-BODY ELSE...
LISTENING TO THE LOCAL SPORTING GOODS TYCOON TELL HIS TALE OF WOE...
THANX AND A HAT TIP TO ROSE ARTOLE, 137-25 168TH ST., JAMAICA, N.Y.
JIMMY HATLO
5-7
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Architects, Consulting Engineers, And Contractors at Work

(Concluded from page 1)

petency and influence, just as do members of other professions. For example:

"Our business depends on the consulting engineer," averred one of the five largest contractors in New York. He emphasized the fact that while jobs are let out on a bid basis, frequently a consulting engineer will phone his favorite contractor and tell him that he can have a certain job if he can shave a bid by X number of dollars.

Because of this situation, quite a few big contractors mind their manners when dealing with a consultant, even though several contractors stated baldly and boldly during these interviews that they had engineers on their own staffs superior to men employed by most consulting firms anywhere.

"Frequently we have to redesign an installation after a consultant runs the air ducts right through the light fixtures," claimed one air conditioning contractor who, perhaps, would prefer not to be identified.

Actually, how important are the architect and consultant in big building air conditioning? Let's check a particular installation—a 38-story skyscraper located at 375 Park Avenue, New York City—to follow the chain of decision.

Builder and owner is the Seagram Distillers Corp. This extravagantly handsome new building was intended to be Seagram's monument. It is reported that Seagram laid it on the line at $60.00 per square foot, highest price ever paid per square foot of office space anywhere. The huge Socony Vacuum Building, in contrast, cost less than $30.00 per square foot.

Initial planners were architects Mies van der Rohe and Phillip Johnson.

Van der Rohe and Johnson were not alone nor lonely on this job. The architectural firm of Kahn and Jacobs also joined the act. This firm has its own staff of consulting engineers. But, at 60 bucks per square foot, the consulting firm of Jaros, Baum & Bolles could afford to join the party, too. General contracting firm, incidently, was the George A. Fuller Co.

Jaros, Baum & Bolles drew up the plans for air conditioning, heating, and air handling installations. These plans were approved by the architects. Thereupon the general contractor requested bids from several mechanical contractors. Winner was Kerby-Saunders, probably the largest big-building contractor anywhere. Only Raisler Corp. competes at this altitude.

In New York City everyone calls specifications "spes" to rhyme with mess, rather than "specs." In this case the air conditioning equipment "spes" called for "Carrier, Worthington or York." Carrier got the job.

Other equipment went as follows: cooling towers, Phillips; pumps, Worthington; controls, Johnson; steam turbine, Elliott; peripherals, Carrier; tubing, Chase; motors, Westinghouse; air handling, Westinghouse; electrostatic filters, Westinghouse.

As a "monument," by the way, the Seagram building probably was the biggest letdown since the sinking of the Titanic. Here was an edifice intended to make remnants of the Prohibition Party mention the Seagram name with awe. Then Cushman-Wakefield, building management firm, tried to obtain occupants. Whereupon Clancy, and other people, lowered the boom.

Seems as though rental prospects feared that a certain few customers might be reluctant to deal with a firm located in a "Seagram's Building." Could be that an odd number wouldn't even want to be seen entering a temple to Bacchus. So "Seagram's Building" it remains in memory only. Nowadays it carries the prosaic title of 375 Park Avenue.

Just how were all the abovementioned pieces of equipment—and their counterparts in other newly built skyscrapers—selected, and by whom? Let's start at the beginning, and generalize:

When the bid is submitted, equipment generally isn't named by brand. Therefore, if a consultant says "Carrier or equal," the winning bid may embrace Worthington, York, Trane, or any other Carrier competitor.

Should a manufacturer strive to get his name on a consulting engineer's "spes"? Listen to a top manufacturer's rep: NO. "The contractor controls the brand choice, other things being equal. When a particular manufacturer is specified he relaxes. Manufacturers not mentioned in the 'spes' go out and sell against a brand specified, and often get an order."

Widely it is reported that a consulting engineer frequently doesn't know or care what equipment brands should be "spessed." He is interested mainly in over-all performance. Therefore and thereafter the contractor is free to use his own judgment. Furthermore, the architect plays only the most minor of roles in selection of equipment *makes* of air conditioning and heating items.

As one contractor puts it: "The architect is our nominal boss. We send our specifications and plans to him for approval, but this is merely a courtesy." And a New York consultant confirms: "The architect is interested only in the esthetic end of an air conditioning installation."

If air conditioning equipment will show externally, the architect may describe such items as vents or peripherals. Normally, however, he concerns himself only with size or color of visible air conditioning stuff, so as to be certain that it blends with the total effect.

Prospective big-building proprietors are obliged to provide air conditioning nowadays. Sound reason: unless plans call for air conditioning, banks or insurance companies will not put up mortgage money. In effect—and in fact—financial institutions are the best salesmen of big building air conditioning today.

A financier or actual owner of property influences selection of equipment *by brand* only if there are backs to be scratched or fur to be rubbed. Banks occasionally curry large depositors just as life insurance investors might favor clients in our field. But this occurs only when they are putting up their own buildings—not when they are the hard-headed mortgagors.

Nobody, but nobody, questions the importance of the contractor on commercial and residential jobs. He's the boss there. Somewhat suprisingly, also it turns out that his buying influence is almost as great in the biggest industrial air conditioning installations.

Consultants and architects may specify. It often is the contractor who actually buys the products.

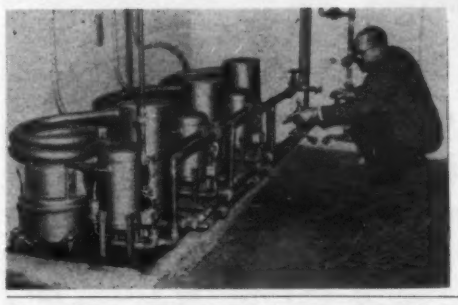
This, then, seems to be the story: the banks sell air conditioning, the owner pays for it, and the contractor selects and installs it. Important as they are to the entire scheme of things, architects and consulting engineers apparently don't bother too much with brand name "specs" or "spes."

It's the contractor who most often is the real purchasing agent, and whose good will should be cultivated in getting the order.

Three 5-Ton Packaged Liquid Chillers Cool Bowling Alleys, Boost Summer Patronage 25%

ANN ARBOR, Mich.—A combination of factors saved 20th Century Recreation bowling alleys here, 50% on the installation of air conditioning equipment which increased the alley's business by 25-30% last summer, it has been reported.

Robert McConnell and William O. Johnston, owners of 20th Century Recreation, decided two years ago to install automatic pin spotters on the 12 lanes they operate. Since rent, wages, and overhead had to be paid for in summer as well as winter, they further decided they should air condition the alleys to insure summer customers and income.



H. MAX KOCH, of Scheve and Koch Heating & Air Conditioning Engineers, Ann Arbor, Mich., inspects the three 5-ton Acme "Flow-Pac" packaged liquid chiller units which comprise the heart of an air conditioniing installation at 20th Century Recreation bowling alleys.

Old System Too Costly To Operate

An outmoded, fan-coil air conditioning system in the building hadn't been used in 11 years because (1) it didn't produce the 70-75° F. temperatures the owners felt they required, and (2) it was operated with city water and the huge amount of water used was expensive.

Engineering estimates for the proposed air conditioning system established that a 20-ton unit would be required. But 20-ton liquid chillers are big, and the stairway leading to the 20th Century Recreation basement could only be reached via a narrow hall and a 90° turn.

Scheve and Koch Heating & Air Conditioning Engineers, Ann Arbor dealer for Acme Industries, Inc., solved the problem by using three 5-ton Acme "Flow Pac" packaged liquid chillers mounted in tandem.

The three small units went down the narrow basement stairs with ease. The only alternative, building a unit or units in the basement, would have cost the 20th Century partnership at least three times as much, according to H. Max Koch, of Scheve and Koch.

Units Work According To Load-Demand

The three units work according to the load-demand, Koch said. The first unit cuts in when the temperature of the bowling alley upstairs reaches 75° F. When the number of bowlers and spectators increases and causes a temperature rise to 77° F. the second unit is called upon. The third unit cuts in at 79° F.

During the summer league season, there frequently are 75 to 100 persons in the bowling alley at once, the owners say. Never have the three Acme units failed to maintain the proper temperature and humidity, the partners point out.

The chillers deliver 42° F. water to three fan-coil units in the bowling alley. The water is returned to the chillers at 65° F.

Max Koch engineered the 20th Century job with economy in mind. Utilization of the three fan-coil units which were in the building, Koch estimates, saved 52% of what the cost might have been with new floor units. Ductwork was installed which allows the filtering and recirculation of air inside the building instead of continually chilling the hotter outside air. Ten per cent outside air is drawn into the system at all times, however. Permanent filters, three of them in each of the 9,000 c.f.m. fan-coil units, are washed about twice monthly.

The blowers are located in an insulated chamber in the attic of the bowling alley. Cleaning the filters would have required a long trek through the alley to a trap door at the rear of the alleys, but Koch installed a tank in the blower room which is filled with 90° F. water from the basement which was used to cool the packaged chiller condensers.

The Acme system is so set up that equal wear among the three Flow-Pacs is possible.

"In other words," Koch said, "we can, by merely changing pressure valves, have the unit which was No. 1 last year be No. 3 this year and etc. so as to even out the wear."

"We couldn't operate in the summer without this system," the owners of the alleys report.

Koch said it takes about two hours' service work a year to keep the units performing satisfactorily. This time is spent checking and re-adjusting the units.

Atlanta To Get Air Conditioned Merchandise Mart

ATLANTA — Southeastern Merchandise Mart, Inc. has announced plans for constructing an 11-story air conditioned exhibition building with permanent showrooms for 1,000 exhibitors in suburban Atlanta.

The 150-acre site will also include a coliseum with capacity as large as Madison Square Garden and San Francisco's Cow Palace combined, a parking lot for 10,000 cars, and hotel-motel facilities.

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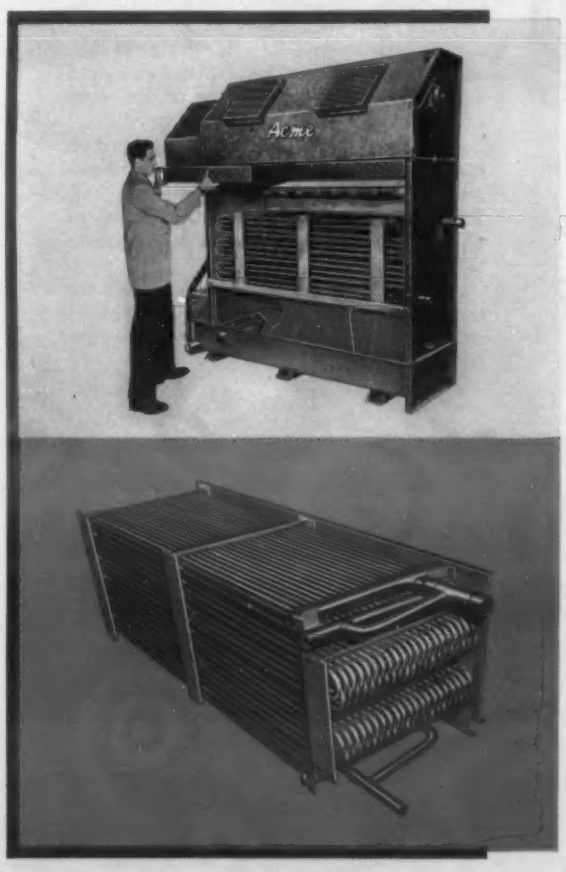

Tubed with
WOLVERINE
Serpentine Coils

Proud indeed of the efficiency and service it builds into its air conditioning and refrigeration equipment is Acme Industries, Inc., of Jackson, Michigan.

Equally proud of the recognition won by Acme since its founding in 1919 is Wolverine Tube. Over the years Wolverine has supplied Acme with mile after mile of gleaming, copper refrigeration tube—such as that illustrated at left in the Acme Flow Mizer Evaporative Condenser.

This nationally-known unit is widely used in both general air conditioning and refrigeration and in specialized industrial applications such as the cooling of plating solutions, chemicals, oils and other fluids.

In this unit, the tube bundle is fabricated by Wolverine into serpentine coils—each of considerable length. Thus, because of its fabrication facilities and know-how, Wolverine helps Acme obtain maximum condensing efficiency in a minimum of space. Also eliminated are the shipping, handling and assembly problems encountered in working with extremely long length tubing.

This is but another example of how Wolverine Tubemanship is serving American Industry. If your company uses tubing why not follow Acme's example—specify the products of Wolverine Tube. You'll find the complete story in our new book "Wolverine Serves the Refrigeration Industry". Write for your copy—TODAY!

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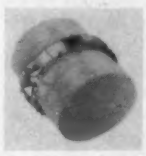
Small Molecular Sieve Drier Introduced

A new, small "Molecular Sieve" drier has just been marketed by Kenmore Machine Products Co., Dept. AC&RN, Lyons, N. Y. This "Little Giant" all-purpose drier was designed to handle units up to ¾ hp. The large capacity inlet filter will clean up the dirtiest system, the manufacturer claims.

The new KMP driers feature spun ⅞-in. o.d. copper shell 4⅝ in. long with ¼-in. copper end tubes silver brazed in place. The inlet is made to fit either ¼-in. o.d. or 3/16-in. i.d. with outlet spun down to accommodate capillary. Tubes can be snapped off, cut, swedged, flared, or bent quickly and easily to take care of all field applications from capillary sweat connection to ¼-in. flare.

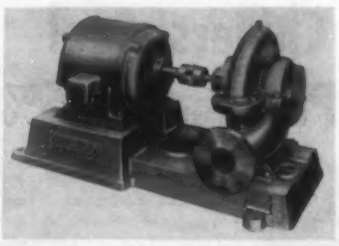
Ventiduct Coupling Speeds Installation



A flexible duct coupling that can be closed with only one nut and bolt is being manufactured by Marman Div., Aeroquip Corp., Dept. AC&RN, 11213 Exposition Blvd., Los Angeles 64.

The stainless steel "Ventiduct" flexible coupling permits rapid installation in cramped quarters, the manufacturer claims. Because of the high strength of the Ventiduct joint, ducting installed through ceilings requires no flange support, the company added.

Ventiduct segmented coupling strip is supplied in 3-ft. lengths. Clips come in pairs. This length will accommodate sizes from 3 to 12 in. Two or more coupling strips can be joined for duct diameters greater than 12 in.



Chicago Pumps Claimed To Be Quiet, Compact

A new line of horizontally split-case single stage, centrifugal pumps has been announced by Chicago Pump Co., Dept. AC&RN, 622 Diversey Pkwy., Chicago 14.

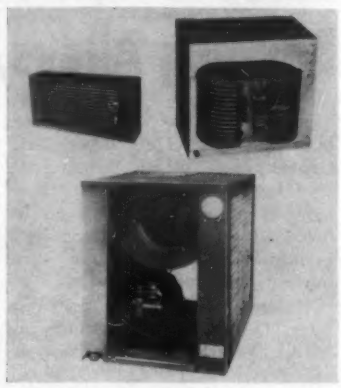
Known as type S, the pumps feature quiet operation, compact over-all dimensions, pre-lubricated bearings, and ceramic mechanical seals, according to the manufacturer. They are suited for air conditioning, refrigeration, heating, and other applications.

Olsen and Henry Introduce New Products

New air-cooled condensing units of 2, 3, and 5 hp. and new plenum-type circular evaporator coils have been announced by the C. A. Olsen Mfg. Co., Dept. AC&RN, Elyria, Ohio, and the Henry Furnace Co., Dept. AC&RN, Medina, Ohio.

Constructed of 16-gauge zinc coated steel with baked enamel finish, the new "Luxaire" or "Moncrief" condensing units feature top exhaust of condenser discharge air, centrifugal condenser blowers, over-sized condenser coils, and heavy-duty motor-compressor units.

The base is channeled to promote drainage and pipe bushings are provided for mounting legs.



Designed to be used in plenum installations above upflow forced air furnaces and available in capacities to match the new condensing units, the plenum type evaporator coil employs a circular type of construction.

Advantages gained by the new round-or-oval-shaped evaporator coil are more compact construction with increased cooling surface in a smaller space and lower height, with improved condensate moisture removal and drainage due to the vertical side walls, the manufacturer says.

Available with the circular cooling coils, new prefab plenum chambers are designed to provide slide-in installation of the coils.

For installations where air is discharged in one direction only, new duct-type evaporator coils are available for use with the new air-cooled condensing units. The duct-type coils are flat in construction and are mounted vertically in heavily insulated, enameled steel casings which have flanges for connection of ducts.

RANCO 018-100 CONTROL

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Special power element bulb . . . single-temperature liquid fill maintain established ice thickness

Accurate ice bank control on milk coolers and other refrigerating equipment is a simple matter when you use Ranco's practical 018-100 control.

The Ranco 018 features a specially-constructed power element with a single temperature, phase change type liquid fill that responds rapidly to the freezing and thawing action of water at 32° F.

Contacts open when ice extends ⅛" beyond the bulb. As temperature rises and bulb becomes partially free of ice, contacts close automatically.

The special power element employed on the Ranco 018-100 eliminates the necessity of altitude or barometric corrections. To install, bulb is simply positioned at the edge of the ice bank area, 3 to 4 inches below water surface.

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WORLD'S LARGEST MANUFACTURER OF REFRIGERATION CONTROLS

Ice Crusher Handles 30 Lbs. Per Minute

A new, completely automatic unit that reportedly crushes up to 30 lbs. of ice per minute from any make of ice machine is announced by Scotsman, Queen Products, Inc., Dept. ACRN, Albert Lea, Minn.

Designated model C-1A "Super Crusher," the unit occupies 1½ sq. ft. of floor space. The exclusive Scotsman crushing mechanism "has no knives or picks to clean, maintain, or sharpen," the company said, and a safety-guard feature is provided.

Other features include an adjustable ice control, plastic or Fiberglas receptacle, heavy-duty ½-hp. motor, and stainless steel ice hopper. Over-all dimensions are: height, 31¾ in.; width, 14½ in.; and depth, 19¾ in.

Electronic Motor Operator Introduced

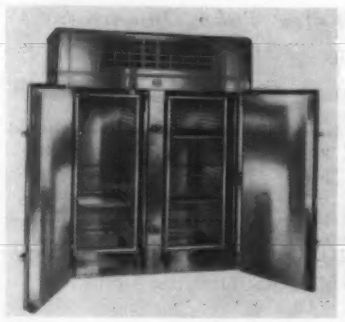
A new line of electronic motor operators designed for the proportioning control of dampers or valves in heating, ventilating, and air conditioning systems has been introduced by Barber-Colman Co., Dept. AC&RN, 1300 Rock St., Rockford, Ill.

The motor operator is a heavy-duty reversible shaded-pole motor, with motor and gear train completely submerged in oil. Standard units deliver up to 220 lb.-in. torque at a timing of 130 seconds per 180° stroke, according to the company. Adjustable units offering other limits of rotation, timings, and torque ratings are also available.

The electronic amplifier and bridge unit is completely factory installed. The amplifier uses a plug-in Barber-Colman "Microrelay" and two standard electronic tubes.

The motor operator has a built-in snap-acting, single-pole, double-throw switch for control of additional motors, relays, etc.

FOR MORE INFORMATION ON THE PRODUCTS DESCRIBED ON THIS PAGE
Write Directly to the Company—*at the Address Given in the News Item*



Tray Carts Can Roll Into Herrick Model

A refrigerator that accommodates tray carts is being made available by Herrick Refrigerator Co., Dept. AC&RN, 1019 Commercial St., Waterloo, Iowa.

Many time and work-saving benefits are provided by this new refrigerator, according to company spokesmen.

Desserts, salads, or other dishes can be prepared where most convenient, placed on trays in the carts, and wheeled into the refrigerator for storage. When serving time arrives, the carts can be moved to any specific location for food distribution. Handling of individual trays to and from the refrigerator is thus eliminated. The tray carts can also be utilized by the chef for holding cuts of meat or different kinds of vegetables.

Shown here is the stainless steel two-door model with a self-contained top-mounted condensing unit. These refrigerators are also made in three and four-door and larger sizes. Any of them can be obtained in double front pass-through models.

G-E Gas Furnace Uses 40% Less Space

A completely new gas furnace for the home has been introduced by General Electric Co., Dept. AC&RN, Bloomfield, N. J.

Known as the "Custom" gas furnace, it features a new style in exterior design and a new heating element. It is said to use 40% less space than previous models.

A small cooling coil enclosure can be affixed to the top to give year-round air conditioning.

Develops New Technique for Chemical Treatment of Water

A unique method of applying chemical treatment to the circulating water in air conditioning systems, for the purpose of combating corrosion and scale, has been developed by Water Service Laboratories, Inc., Dept. AC&RN, 615 W. 131st St., New York City 27.

The new method utilizes a "Chemistat" (proportional chemical feeder) that is small, portable, and easily handled. It is designed to be put into a cooling tower or evaporative condenser or air washer in such a position that some of the spray water falls directly on it.

On top of the Chemistat is a device called the Chemistat Head that catches a small amount of the spray water and funnels it into the chamber that contains the solid chemical.

After contact with the chemical the water flows out of the chemical container carrying a controlled amount of chemical with it in solution.

The whole chemical feeding unit weighs about 15 to 25 lbs. depending on its size.

When water is circulating through the cooling tower or evaporative condenser, chemical is being continuously fed. It is necessary to feed the chemical continuously in a small stream to make up for that which is continuously being lost by windage, or by leakage of water around the circulating pump packing glands or elsewhere.

Whenever the air conditioning or refrigerating system shuts down the feeding of chemical stops.

When the system is started up again the feeding of chemical automatically starts. Means are provided for changing the rate of chemical feed as called for by experience.

When the chemical contents of a container are exhausted the Chemistat is simply lifted from the cooling tower pan, and a new one substituted for it. The "head" is unscrewed from the empty container and screwed on to the new one.

New 'Metal Lumber' Assembles Easily

An all-steel framework "which can be assembled quickly and at low cost to form everything from storage racks to shed-type buildings," is now available from Republic Steel Corp.'s Berger Div., Dept. AC&RN, 1038 Belden Ave. N.E., Canton 5, Ohio.

Called "Bild-A-Flex," the new "Metal Lumber" brings ease-of-assembly to such applications as permanent scaffolding, ladders, partitions, stock carts, work tables, racks, platforms, catwalks, ramps, enclosures, machine guards, and electrical mountings, it was stated.

Ready for immediate use, each package of Bild-A-Flex contains 10 lengths of steel framing, in 10 or 12-ft. sizes, and 75 sets of matched nuts and bolts. For rigidity the framing is formed with a right-angle bend along its length.

To construct a Bild-A-Flex Metal Lumber framework, a worker need only cut appropriate lengths and bolt them together through pre-punched slots. When an original assembly has served its purpose, he can unbolt the pieces and use them again.

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TECHNICAL CENTER

By Frank J. Versagi, Technical Editor

Copper Tubing (7)

Detailed installation instructions would be out of place in a series of this type, especially since very informative literature is published by the several manufacturers of copper tube. Their catalogues and engineering data booklets give information on tubing sizes, water needs of residences and buildings, friction loss, hanging recommendations, and a host of other practical data.

Here, though, we can list a few of the items to consider in using copper tube.

First, on the subject of corrosion. CABRA states that because copper tubing will not accumulate scale, "oversizing is not necessary as is often the case with ferrous pipe." While the high corrosion resistance of copper is a recognized fact, there are factors to watch.

Where water is known to be corrosive, for example, water velocities should be kept down to 5 ft./sec. This reduces corrosion-erosion combinations which can shorten the life of the tube. Tubing sizes should be such as to control the velocity and pressure drop, since when the pressure drop exceeds 20 p.s.i. per 100 ft., noise may become a problem.

Copper tube should not be laid in cinders since the acids developed by cinders and water will attack the metal. When copper must be used near cinders, recommendations are that the tube be surrounded with clean sand mixed with broken plaster or limestone.

Occasionally, people get carried away by the fact that copper is corrosion resistant and that it can be used for some chemical transmission. Then they misapply the tube with sad results.

The newly renovated lobby of a large midwestern theater was damaged extensively when copper plumbing leaked in an office above the lobby. At first the copper tube was thought defective, but investigation revealed that an ordinary bathroom sink had been converted into a chemical drain for a photographic darkroom. The chemicals used in photography are among those which actively attack copper, so the fault was not with the material, but with the use of it.

To be safe, check with a copper tube manufacturer before using copper for anything other than normal water, oil, and gas use. Even some fuel gases may cause trouble, although this is generally known in the area where the gas is incompatible with copper.

One bit of confusion in the distribution of copper tube comes from the distinction made by some between plumbing-and-heating jobbers and refrigeration jobbers. Some tube manufacturers will sell copper water tube to plumbing and heating jobbers but will not allow them to handle refrigeration service tube.

Such a policy is in large part due to the fact that refrigeration jobbers object when plumbing and heating jobbers are allowed to handle refrigeration tube. There doesn't seem to be as much objection from either side when the refrigeration jobber also handles water tube.

Not all copper tube manufacturers differentiate between the types of jobbers, however. Some will sell a legitimate wholesaler any type of tube he wishes to handle—consistent with company policies in specific geographical areas.

Some large wholesalers handle water tube, refrigeration tube, LPG fittings and tube, plastic pipe and tube—the whole gamut.

Refrigeration service tube is also sold to manufacturers. In this case, however, it is handled as a commercial tube, not as a commodity.

Table 3—Typical Comparison Between IPS and Water Tube Dimensions

(All Dimensions In Inches)

	O.D.		WALL					I.D.					
			IPS		Water Tube			IPS		Water Tube			
Nominal Size	IPS	Water Tube	Sched. 40	Sched. 80	M	L	K	Sched. 40	Sched. 80	M	L	K	Nominal Size
½"	.840	.625	.109	.147	.028	.040	.049	.622	.546	.569	.545	.527	½"
1"	1.315	1.125	.133	.179	.035	.050	.065	1.049	.957	1.055	1.025	.995	1"
2"	2.375	2.125	.154	.218	.058	.070	.083	2.067	1.939	2.099	1.985	1.959	2"
4"	4.5	4.125	.237	.337	.095	.110	.134	4.026	3.826	3.935	3.905	3.857	4"

Foreign Copper Tube Problem

Perhaps the greatest bug in the ear of the domestic copper tube producers is foreign copper tube — Japanese tube on the West Coast, German and English tube in the East.

The importers are concentrating on fast moving sizes—⅜ to 1 in. nominal, mostly in straight lengths of hard temper.

While at first there was some defective imported tube, the present material is admittedly good tube which fits well in domestic solder fittings. (For a while Japan also offered fittings, but they were off-tolerance and didn't catch on. There is no apparent attempt to crack the fittings market at this time.)

Some Inspectors Won't Pass Unmarked Tube

Foreign tube is not marked in any way. In some areas city and county inspectors are refusing to pass unmarked tube, a system which could curtail its use if universally adopted. A "Buy American" campaign has been launched, and manufacturers are considering adding "Made in USA" to the tube markings. Thus, even if foreign tube should go to color coding, there would be a distinction between domestic tube and foreign.

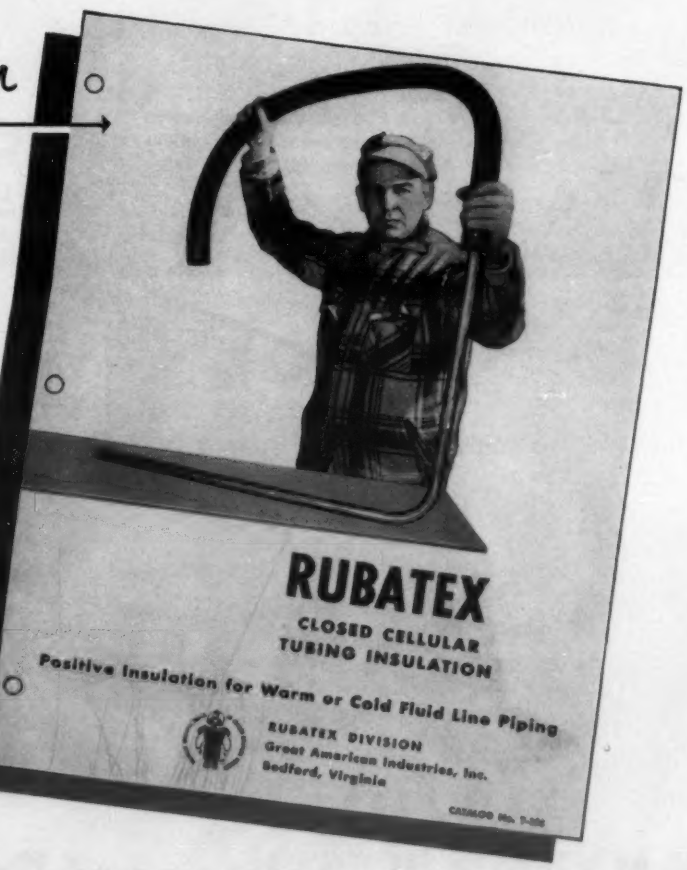
There is talk that building and trade unions are considering the effect on their fellow workers of using tube made by foreign labor at 40 cents per hour or so.

Before beginning a brief discussion of plastic and ferrous

(Continued on next page)

How to keep consistent temperatures and/or prevent condensation on warm or cold lines

Send for free Bulletin



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Type of Business _____

Proposed Application _____

Attach to your letterhead and mail this coupon for your copy of new Rubatex Tubing Bulletin today!

Copper Tubing--

(Continued from preceding page)

piping, it would be well to consider the dimensional comparison between standard pipe sizes and copper tube sizes. The comparison for typical sizes is tabulated in Table III.

IPS—iron pipe sizes—is the normal way to refer to standard pipe sizes. Like copper, the O.D. for a given size is always the same, so that pipe of any thickness will fit threaded fittings. The wall is varied to get the various pressure ratings or strength characteristics.

The most commonly encountered pipe size is Schedule 40. This is the size of normal black iron, galvanized, and steel pipe seen in residences and commercial installations. Looking at 1-in. pipe in Table III, we see that the IPS O.D. is 1.315. The O.D. of copper water tube is 1.125.

The wall thickness for Schedule 40 is 0.133; while that for the heaviest copper tube is only 0.065.

This tube thickness is sufficient for strength since the wall is not cut for threading.

The table also shows the various inside diameters obtained with Schedules 40 and 80 IPS and with copper tubes K, L, and M.

"Extra strong" iron pipe is termed Schedule 80; it has a thicker wall and a subsequently smaller I.D. The still stronger pipe is Schedule 120—called "double extra strong." Schedules 40, 80, and 120 are common, although there are intermediate schedules and wall thickness which find application.

(To Be Continued)

Mile-High RSES Officers

DENVER — Newly-installed officers of the Mile High Chapter, Refrigeration Service Engineer Society, are L. M. Reed, president; William C. Medved, vice president; Aldo Oss, treasurer; William Bell, secretary; and Dan Daible, sergeant-at-arms.

NEMA Reports Refrigerator, Freezer Sales By Distributors by States

NEW YORK CITY—State by state distribution of household electric refrigerators and farm and home freezers for the first three months of 1958, based on distributor sales to dealers were issued recently by NEMA.

Each state's percentage of total sales is shown below:

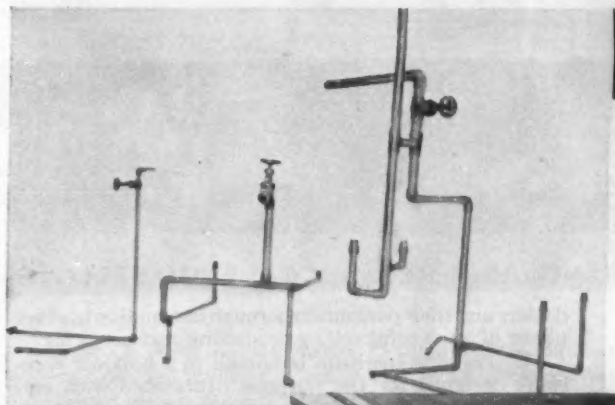
State	Refrigerators	Freezers
Alabama	1.254	2.150
Arizona	.826	.673
Arkansas	.866	1.266
California	10.915	7.564
Colorado	1.043	1.247
Connecticut	1.414	1.249
Delaware	.229	.231
District of Columbia	1.201	1.702
Florida	4.496	2.704
Georgia	2.263	2.659
Idaho	.270	.537
Illinois	6.295	5.755
Indiana	2.995	2.955
Iowa	1.281	2.728
Kansas	1.077	1.259
Kentucky	1.416	1.655
Louisiana	1.814	2.625
Maine	.386	.576
Maryland	1.206	1.251
Massachusetts	2.693	1.223
Michigan	4.669	3.689
Minnesota	1.612	2.941
Mississippi	.765	1.530
Missouri	2.428	3.410
Montana	.266	.391
Nebraska	.702	1.639
Nevada	.160	.174
New Hampshire	.253	.098
New Jersey	3.078	2.245
New Mexico	.373	.551
New York	10.733	4.830
North Carolina	1.728	3.232
North Dakota	.221	.811
Ohio	5.270	4.957
Oklahoma	1.370	1.197
Oregon	.851	1.373
Pennsylvania	6.156	5.263
Rhode Island	.381	.164
South Carolina	.820	1.584
South Dakota	.311	.709
Tennessee	1.483	2.965
Texas	5.370	6.141
Utah	.480	.351
Vermont	.142	.157
Virginia	2.111	2.099
Washington	1.438	2.090
West Virginia	.819	.750
Wisconsin	1.952	2.539
Wyoming	.118	.111

Checking Centrifuge's Refrigerant Lines

REFRIGERANT lines used in chilling test compartment of a huge centrifuge being readied by Convair-Astronautics at San Diego, Calif., are checked by Dan T. Kuczon, Convair-Astronautics test engineer, left, and Al Roth, assistant chief engineer for The Rucker Co., which built the centrifuge to specifications of Convair Div. of General Dynamics Corp. The centrifuge is built to exert forces up to 100 times the pull of gravity, and at the same time apply extremes of temperature to test items.

Ease of Prefabricating REVERE COPPER WATER TUBE

a big factor in proving copper costs less than rustable material to install



REVERE COPPER WATER TUBE lends itself ideally to sub-assemblies like these. Except for the vent stack the three sub-assemblies shown make up the complete roughing-in for an entire bathroom. Solder fittings assured tight joints when handled and installed. Installation time was saved. Tube supplied by Revere Distributor, CRANE COMPANY, Dallas, Texas.

CHILLED WATER CIRCULATING SYSTEM of Revere Copper Water Tube showing expansion loops and risers which are carried out through the entire periphery of the building. All tube will eventually be insulated as shown. Note absence of joints when easy-to-bend Revere Copper Water Tube is used. It would have been necessary to cut 8 threads and make 8 fittings, in this one set of loops alone, had rustable pipe been used here.

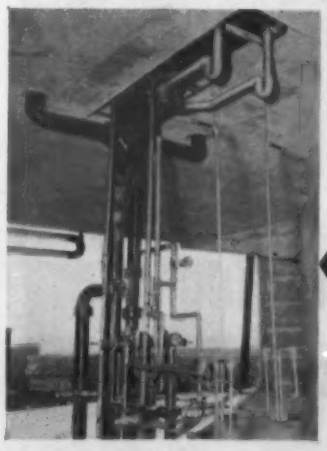


PHOTO SHOWS a complete roughing-in of two abutting baths, together with copper drainage lines from the two bathtubs in the bathroom above. Easier fabrication, less space requirements and the non-rusting qualities of copper are the reasons for using this material for these drainage lines on this job.

THE STATLER HILTON HOTEL
Dallas, Texas

IN this newest Dallas hotel there were 60,000 lbs. of Revere Copper Water Tube in diameters ranging from ⅝" to 2½" used for hot and cold water plumbing lines and chilled water lines for air conditioning.

A most interesting feature of this installation was the various sub-assemblies used. (See upper left photo) According to Mr. Brown of the BROWN-OLDS COMPANY, mechanical contractors on the job, "The prefabrication of the sub-assemblies saved many hours of installation time, thus making a copper job cost less than rustable materials to install. But that's only *one* reason we prefer copper water tube. Not only is time saved with the solder fittings used, but you can work in the tight spots without worrying about wrench space. You are always sure of tight joints, and sub-assemblies can't work loose in handling. Then, of course, there is never any corrosion problem, so we always feel confident of doing a good job when we use copper water tube."

These same outstanding characteristics of Revere Copper Water Tube also make it the preferred material for radiant panel heating, underground service lines, drainage, waste and vent lines, oil burner and processing lines.

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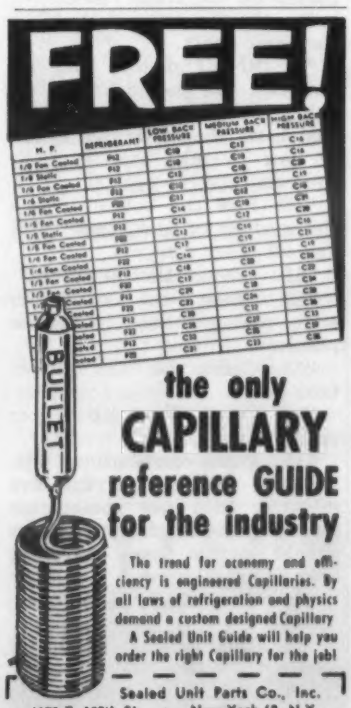

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Proper Installation Prevents Service Problems, Dealers Told at OHI Session

NEW YORK CITY — Contrary to usual thinking, "it is the installation of oil heating equipment which is complex and challenging and the servicing of good heating equipment which is comparatively simple," contends Albert Brand of Brand's Heat Control, Inc., of Bridgeport, Conn.

Speaking at the 36th annual Oil-Heat Institute convention here, Brand declared that the most difficult service problems of pulsation, smoke, soot, odors, insufficient heat, and uneven heat "do not exist in a properly installed oil heating plant."

"The procedure for good oil heating through proper combustion is," he suggested:

"1. Determine the proper firing rate.

"2. Install fire chamber of insulated brick of proper size and shape.

"3. Use a combustion head.

"4. Baffle.

"5. Use an excellent draft control.

"6. Use a delayed oil valve for elimination of smoke on start and stop.

"The procedure for even, comfortable heating and adequate hot water is:

"1. Proper sizing and installation of heater.

"2. Proper sizing and installation of radiation.

"3. Selection of proper controls."

One factor that has never been stressed enough, according to Brand, is installation "with a view to good accessibility for quick and easy service."

He also suggested that dealers confer with the servicemen to determine minimum requirements for fine equipment.

Use Burner with Combustion Head

"Use a burner with a combustion head, for not only will you get higher efficiencies, but also you will find it simpler to adjust, easier to remove and install, and a money saver because of the ease and speed of servicing," Brand said.

"We have all seen the plumber's paradox: 10 pipe fittings going into the pump from every conceivable angle. When a pump has to be removed, 10 fittings have to be removed as well. However, if you use standard flare fittings connected to copper tubing, it is necessary to break only three connections, remove three small fittings, and you are ready to install another pump," he said.

"On inside tanks install an oil filter at the tank, and raise the suction line 2 or 3 in. from the bottom. On outside tank installations place the oil filter, and anti-syphon valve at the wall, and raise the suction line 4 to 5 in. from the bottom. Run the suction line directly from the tank to the cellar without any breaks, thus eliminating the need for foot valves.

"The smoke pipe and draft control should be easy to take down, easy to install close to the chimney, and yet far enough away to permit the serviceman to do his job. Install a thimble in the chimney," Brand advised.

"Follow the manufacturer's recommendations for the installation of thermostats and controls. In fact, you should always be sure to read all manufacturer's literature.

"Piping and ductwork should be sized for comfort heating, and all wiring must be done according to the code. Once again, let's not forget that we are going to have to service all this apparatus," he urged.

"Once a year we have an opportunity to check over the systems we install and make sure they are operating at the efficiency we planned for them. If we plan the annual clean-up correctly, we will make money, eliminate many trouble calls during the heating season, and keep that customer happy.

What To Check on Yearly Inspection

"Once in the cellar, here is a suggested plan for order of operation.

"1. Check the heater and clean if necessary. Always clean the stack and base of the chimney.

"2. Turn on the burner to be sure that it is operative.

"3. Remove the burner housing and check. This is the area where you find indications of poor drafts, after drips, and slight puffs. Clean housing thoroughly, especially the nozzle adapter. All nozzles of 1.00 g.p.h. or under should be replaced yearly. All nozzles of 1.25 g.p.h. or over should be replaced every two or three years. (This affords extra income and a minimum of call-backs on plugged nozzles). Clean or replace electrodes or electrode wire when necessary.

"4. Remove motor and clean burner housing and fan.

"5. Clean pump strainer thoroughly and replace with new gaskets.

"6. Change oil cartridge in oil filter.

"7. Run off oil in a large container. This helps to loosen any dirt still left in the pump and affords us an opportunity to check the spark with a flame mirror, and to check the safety timing on our stack relay.

"8. Check for seal leak on the pump shaft.

"9. Oil all motors and accessories. We should have a set policy for oiling motors, and all customers should be told exactly how to take care of their equipment.

"10. Fire the burner. Check the cycling of the stack relay and all other controls.

"11. Change the air filters.

"12. Check the humidifier and replace the humidifier plates.

"13. Check for any oil or tank leaks.

"14. Check fuse for proper size.

"15. Take combustion tests. Let the burner run for five minutes, then use combustion instruments. Efficiency readings should match those taken at time of installation.

"16. Clean and check thermostat.

"17. Talk to customer about heating.

"The annual clean-up should cover everything. If any component does not come up to specifications, both the office and the customer should be notified," Brand advised.

TRAINED TO MAKE A PROFIT!

STEWART-WARNER FACTORY TRAINING ASSURES SUCCESSFUL SELLING

The Stewart-Warner Training Institute.

Stewart-Warner's unvarying objective is that dealers holding the Stewart-Warner Exclusive Franchise *must make money!* That is the reason for the Stewart-Warner Training Institute...conceived and developed to give dealers and their personnel thorough instruction in every phase of successful selling, installing and servicing.

The Training Institute is housed in a building especially designed for the purpose...furnished with cutaway models, working demonstrators, charts and equipment for illustrated lectures. Courses include sales procedures and business promotion methods proved most effective—including how to demonstrate a product and close a sale. This school saves dealers' time in training men...does a complete job with all the proper tools. Hundreds of Stewart-Warner dealers have attended the Institute—declare it amazingly successful in stepping-up sales.

Write today for complete information on the Stewart-Warner Exclusive Franchise and how it can revolutionize your profit picture.

EVERYTHING FOR HEATING AND COOLING

Saf-Aire "Safety Sealed" Gas Heaters
Residential and Commercial Cooling Equipment
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HEATING AND AIR CONDITIONING
DIVISION
STEWART-WARNER CORPORATION

Dept. BA-78, Lebanon, Indiana

Motel's Cooling Is Trump Card

45 Rooms Controlled From Central Panel In Main Office

CO-MANAGER Mrs. Jack Cardwell operates air conditioning controls in administration building of New Castle Lodge.

NEW CASTLE, Del.—So successful has been its 45-room completely air conditioned motel near here that the New Castle Lodge is planning to open another 45-room unit on the same site.

Located on the DuPont highway 2½ miles south of the approach to the Delaware Memorial Bridge, the New Castle Lodge shares a strategic location on the fast route between New York City and Washington, D. C. and points south with numerous other motels and courts.

Its trump card has been its completely air conditioned accommodations, which it advertises on a neon highway sign in front.

New Castle Lodge at present consists of an administration building in front and two dormitories behind.

Sixteen of the dormitory rooms are on the second floor which appeals to some of the motorists.

A 15-ton UsAirco "Kooler-Aire" unit is located in the basement of each dormitory and a 5-ton unit in the administration building. All are centrally controlled from a panel in the main office.

The cooling units are connected to oil furnaces for winter heating.

Ductwork from the cooling units connect with ducts from oil furnaces to supply year-round air conditioning through the same air distribution system.

Though the motel has its own wells for water supply, it employs an evaporative condenser and recirculates condenser water.

In addition to the office, the administration building includes living quarters for the manager and his wife. These quarters are also air conditioned.

Installation was made by Charles Simkin & Sons, Inc. of Perth Amboy, N. J. Wolf & Glucksman of Newark, N. J. was the architect.

L. K. Irvine Heads Salt Lake ASHAE

SALT LAKE CITY — L. K. Irvine has been elected president for the coming year of the Salt Lake Chapter, American Society of Heating & Air-Conditioning Engineers.

Other new officers are: Robert V. Oliver, vice president, and V. Quentin Tregeagle, secretary-treasurer.

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Another 'Indoor Climate' Parley Being Considered

LOS ANGELES — Discussion about a second "Indoor Climate" conference at University of California, Los Angeles would have it held early in 1959, between fall and spring semesters, about the end of January.

Besides the Institute of Heating & Air Conditioning Industries, the second conference is expected to have additional sponsorship from engineering and contracting groups.

The first "Designing the Indoor Climate" meetings were held at UCLA Sept. 12-13, 1957. The program featured scientists in environment, meteorology, and health fields, as well as engineering, architectural, and manufacturing experts.

WHAT . . WHEN . . WHERE

Oil-Heat Institute of America Directors Meeting
Sept. 3-5, The Homestead, Hot Springs, Va.

National Institute of Locker & Freezer Provisioners Convention and Exhibit
Sept. 21-24, Hotel Sherman, Chicago.

Refrigeration & Air Conditioning Contractors Association Convention
Oct. 12-15, Broadmoor hotel, Colorado Springs, Colo.

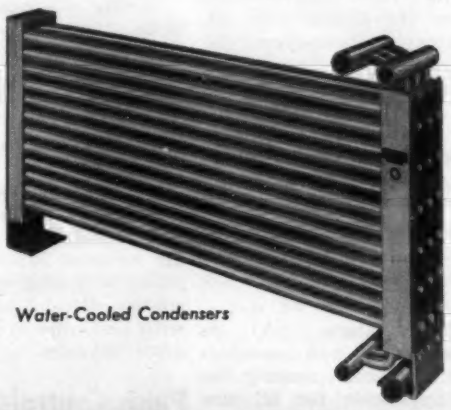
Air-Conditioning & Refrigeration Wholesalers Meeting
Oct. 22-24, Sheraton-Palace, San Francisco.

National Electrical Manufacturers Association Meeting
Nov. 10-14, Traymore hotel, Atlantic City, N. J.

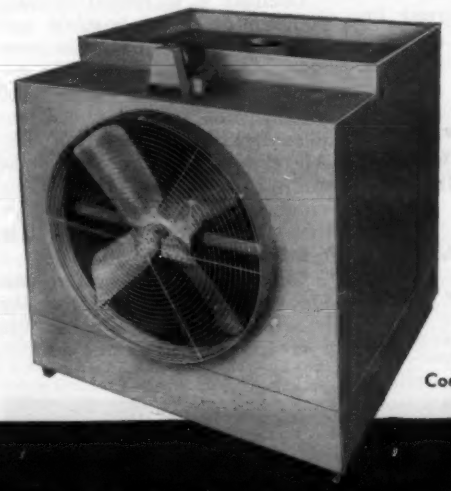
National Commercial Refrigerator Sales Association Convention
Nov. 17-19, Golden Gate hotel, Miami Beach, Fla.

American Society of Refrigerating Engineers Meeting
Dec. 1-3, Roosevelt hotel, New Orleans.

National Warm Air Heating & Air Conditioning Association Convention
Dec. 1-4, Cleveland.



Water-Cooled Condensers



Cooling Towers

Which Condensing Method is Better— AIR-COOLED or WATER-COOLED?

There is really no pat answer to this, because many considerations are involved. Cost of electricity, ambient wet bulb temperatures, amount of dust and dirt in the air, compressor capacity at elevated temperatures—these are some of the factors involved. Each job must be considered individually, but your Halstead & Mitchell representative is available for help in deciding.

Whichever method you choose, you'll find an H&M product that meets the requirements. Operating and maintenance costs will be lower, too.

H&M *Cleanable*, Counterflow, Water-Cooled Condensers in ⅛ thru 25 tons provide efficient cooling, and have a highly favorable fouling factor.

H&M Cooling Towers with the exclusive 20-year Guarantee against failure due to rotting or fungus attack of the wetted deck. Quiet, belt drive, propeller fan models in 5 thru 125 tons. Direct drive models in 2 thru 7½ tons. Take-Aparts in 5 thru 100 tons. Centrifugal fan towers in 5 thru 25 tons for use with ductwork. All towers have permanently sealed fan bearings, and are specially coated against corrosion *after* complete assembly.

H&M Turbu-Flo Air-Cooled Condensers in 3 thru 50 tons are designed for full performance even on high temperature days. Wide fin spacing prevents clogging. Exclusive Turbu-Flo fins provide up to 15% greater capacity. Furnished in direct or belt drive; for floor or ceiling mounting.

Finned Surface Coils

H&M Finned Surface Coils with Turbu-Flo fins for more efficient heat transfer are available in a wide range of sizes for heating, cooling or tempering. Direct expansion coils complete with refrigerant distributor; water coils for use with chilled or hot water; steam coils in standard or non-freeze types.

Air-Cooled Condensers

H&M
Halstead & Mitchell

Ask for Halstead & Mitchell products at your distributor's or write for more detailed information. Halstead & Mitchell, Bessemer Building, Pittsburgh 22, Pa.

WATER-COOLED CONDENSERS • COOLING TOWERS
AIR-COOLED CONDENSERS • FINNED SURFACE COILS

Two-Volume Control: *An Approach to Problem of Regulating Furnace Air Flow When Cooling Is Added*

An article by Walter Weiss, American Furnace Co. in the May 26 NEWS discussed the problem of obtaining the two volumes of air needed when cooling is added to a heating system. Peter Kardos, chief, development section, Morrison Products, Inc., Cleveland, has written a comment on this, describing a product which, in his words, "solves the problem of regulating furnace air flow when a cooling coil is added."

By Peter Kardos

Development of a new blower with automatic two-volume damper control solves the problem of how to regulate the air flow in a heating system when a cooling coil is added. This problem was posed by E. Weiss, product application engineer of American Furnace Co.

Weiss indicated that the best solution for delivering two volumes of air, one for heating and one for cooling, "is to use a damper in the main trunk line. Block off some of the air in winter and let the full volume go through in summer." This is exactly what the new Du-Air Blower does, increasing homeowner comfort for little additional cost.

Du-Air is operated on the 24-volt thermostatic control circuit so that no additional wiring is required from the thermostat to the air conditioner.

Comfort is increased because manufacturers of heating and cooling combination units now design for an intermediate air delivery; using a traditional blower, this causes a compromise from ideal condition. Du-Air eliminates any compromise and provides ideal two-volume air delivery, giving the homeowner optimum heating/cooling comfort.

The automatic two-volume blower, developed by Morrison Products, Inc., eliminates the use of two-speed blower motors, motor operated dampers, fans in series, or having the homeowner or a serviceman change the pulley combination when a new air volume is required.

These comfort and saving features can be used by the home builder to merchandise house heating systems to prospective homeowners. Contractors may also merchandise these features since Du-Air is adaptable to present systems.

Blower control is basically an automatic two position damper, which is operated directly from the thermostat. Its schematic design is shown in Fig. 1.

The damper is opened by the air-stream. If the electromagnet (H) is energized the air-stream opens the damper completely, and the blower delivers its rated air-delivery. Whenever the blower goes off, the adjustable return-spring (I) closes the damper. The tension of the return-spring is set by turning gear (d), either by hand or by inserting a key into holes (E). If the electromagnet is de-energized, the prong (F) stops the control-disk (G).

The damper can be opened by the air-stream only to a predetermined extent and the blower delivers less air.

Deflection angle (A) is easily set by the unit manufacturer or contractor, making the control applicable for all size blowers and all types of installations. This is done by loosening screw (B) and turning shaft (C).

Proper operational sequence is taken care of by the control disk (G), even if irresponsible persons would play with the heating-cooling thermostat.

Since the spring return can move the sequence disk only if the blower is shut off, the control fulfills the thermostatic command immediately only if the homeowner has an intermediate off position on his thermostat. In 99.5% of all cases the homeowner will not go from heating to cooling suddenly, but even in these rare cases the control is fully applicable and will fulfill the thermostatic command with the small time lag of only one blower cycle.

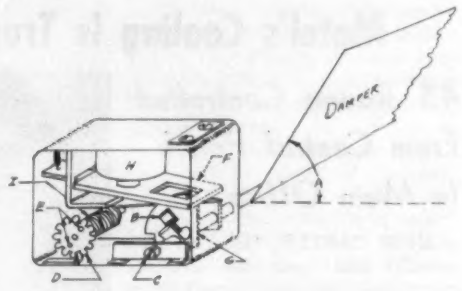


FIG. 1—Schematic diagram of Du-Air blower control which is basically an automatic two-position damper. (See text for key to diagram.)

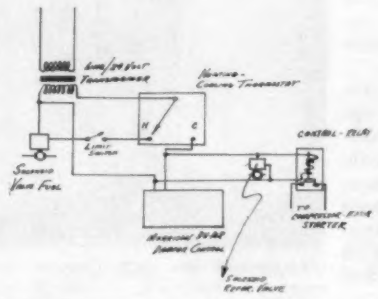


FIG. 2—Wiring diagram of a typical installation gives an idea of the general application of the Du-Air blower.

Wiring diagram of a typical installation is shown in Fig. 2 to give an idea of the general application. The control is wired in parallel with the low voltage line. The blower requires the same space as conventional installations.

A system using Du-Air does not need any special balancing at installation because both air volumes follow strictly the curve of system-resistance. The control can be used effectively with belt, direct, unit, or intra-drive blowers.

Penn Controls Appoints Russell Chief Engineer

GOSHEN, Ind.—Appointment of Grover M. Russell as chief engineer of Penn Controls, Inc. was announced recently by Ralph S. Penn, president.

G. M. Russell

Russell will assume responsibility for Penn's research and development program, including the management of laboratory and model shop facilities. He joined the company in 1956 and has held the position of chief project engineer since January, 1957.

Thinking of —

- **changing territories**
- **expanding your territory**
- **taking on new lines—**

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NOW.. FROM *REMCO* MOLECULAR SIEVE FILTER-DRIERS with DEPTH FILTRATION

Utilizing advanced design Molecular Sieve cartridges, these new Remco Filter-Driers combine unequalled drying efficiency, effective acid removal, generous flow capacity and *depth* filtration.

The massive depth filter completely removes all scale, sludge, carbon and other particles as small as 100 microns. Molecular Sieves adsorb and retain large quantities of moisture even at refrigerant temperatures of 140F, and keep moisture concentrations below 10 ppm. Acids are reduced far below dangerous corrosion limits.

Compact in size, the filter-driers are U/L Approved and may be used for Refrigerants 12 or 22, Carrene or methyl chloride. Working pressure is 500 psi; minimum bursting pressure, 2500 psi.

REPLACEABLE CARTRIDGE TYPE units use an "O" ring for a positive, leakproof flange seal. From 3 to 40 tons, with ⅜" thru 1⅝" sweat connections.

SEALED TYPE filter-driers are available in 1 to 12 tons, with ¼" thru ⅝" flare and ⅜" thru ⅞" sweat connections.

"T" FITTING TYPE in 2 to 6 tons, are readily adaptable to systems using conventional "T" driers.

Remco Molecular Sieve Filter-Driers are available at leading wholesalers. Ask your wholesaler for more information, or write for Bulletin MS-1. Remco, Inc., Zelienople, Pa.

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MANUFACTURERS OF ADVANCED REFRIGERATION PRODUCTS

Filter-Driers · Liquid Indicators · Receiver-Driers · Check Valves · Safety Devices · Frost-Tite Flare Nuts

Edwards Airvec Supplies 10 Tons of Air Conditioning To New Florida Supermarket*

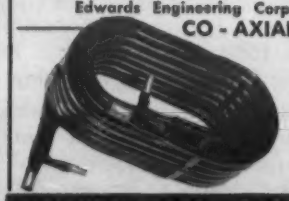
EDWARDS Airvec Condenser Utilizes Convection Principle. Eliminates Noise, Motors, Maintenance, Structural Problems.

Heat rising from the horizontal condenser creates a chimney-like draft that continues to draw fresh air through the unit. Manufactured in 2, 3, 5, and 7½ ton basic sections, which then can be assembled in multi-sections for unlimited capacities up to hundreds of tons.

This principle eliminates: Noise, Motors, Wiring, Maintenance, Operating Problems. WRITE Airvec Dept.

Edwards Engineering Corp. Manufacturers Agents Inquiries Invited.

CO - AXIAL FREON CONDENSERS



- COST REDUCED 30% to 40%
- CONDENSER WATER REDUCED 35%
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EDWARDS ENGINEERING CORP.

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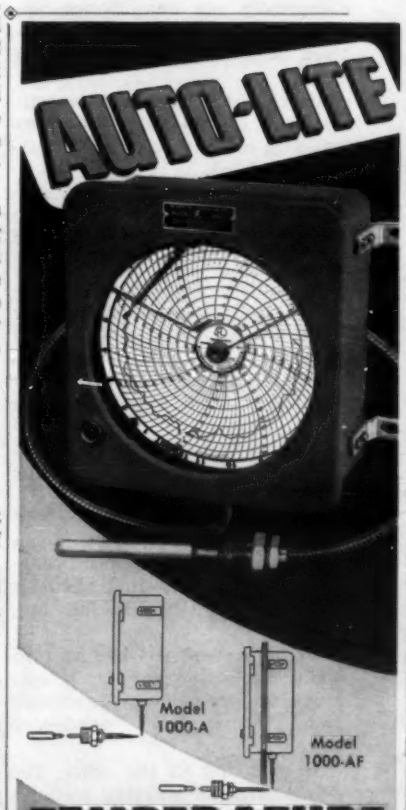
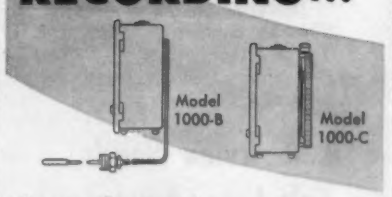
AUTO-LITE



TEMPERATURE RECORDING...



Charts the truth about Temperature

Auto-Lite model "1000" Recorder has capillary tubing for remote reading, easily observed 6" chart . . . Various standard ranges from minus 40°F to plus 550°F . . . Wall mounting, portable or portable self-contained types . . . Electric or mechanical chart drive . . . 24-hr. or 7-day cycle . . . Priced as low as $49.50.

NEW! Auto-Lite TRANSISTORIZED Recorder, Model "2200" . . . charts temperature cycles without the use of ink. Priced from $73.

THE ELECTRIC AUTO-LITE COMPANY
INDUSTRIAL INSTRUMENT DIVISION
TOLEDO 1, OHIO
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Send for Latest Catalog . . . showing many Auto-Lite thermometer types.

TEMPERATURE RECORDERS AND INDICATORS

Men on the Move . . .

Mueller Brass Co.—A. B. OSLIN has been appointed district sales manager of the South San Francisco sales office. ROBERT MILES succeeds him as district sales manager of the Pittsburgh office. Miles has been with the Philadelphia office.

Newly-appointed sales representatives include WILLIAM MEIL, WAYNE BOUCHER, and RICHARD GRYMONPREZ. Meil, who attended Walsh Accounting School in Detroit, has been assigned to the Los Angeles office. Boucher has been assigned to the Philadelphia office, and Grymonprez to the Melrose Park, Ill. office. Both have been connected with the main plant sales department.

Acme Industries, Inc.—Appointments of TERRANCE W. McGUIRE as central regional manager and C. L. RUTLEDGE, JR. as southern regional manager have been announced.

Headquartering in Chicago, McGuire will serve the territory that encompasses Colorado, North and South Dakota, Nebraska, Kansas, Missouri, Iowa, Minnesota, Wisconsin, Illinois, and Indiana.

Rutledge will headquarter in Houston, and will supervise sales in Texas, New Mexico, Oklahoma, Arkansas, Louisiana, Tennessee, Mississippi, Alabama, Georgia, and Florida. He was previously associated with Engineering & Refrigeration Co. of Jersey City as both sales engineer and sales manager.

ROBERT KUHN, WILLIAM K. PARKS, JOHN M. BURKE, and DEAN W. DUSTON have been appointed sales engineers. Kuhn joined Acme in 1956 as a sales application engineer. Parks has spent about eight years in engineering and sales for other industry companies. Both will operate in the Chicago area.

Burke, who owned and operated Temperature Service Co. in Kansas City, Mo., will represent Acme in that city. Duston will represent Acme in Houston, Texas. He worked 10 years as a sales engineer for another industry manufacturer.

The Trane Co.—ROBERT PLAZIBAT has joined the Flint, Mich. sales office as a sales engineer of residential and self-contained air conditioning equipment. He has three years' experience as a sales engineer in the air conditioning field.

JOHN B. CUSTER has been promoted to manager, aircraft heat exchanger sales department, and WILLIAM H. STAHLHEBER to manager, process heat exchanger sales department. Custer was associated as a development engineer for eight years with an eastern corporation and Stahlheber was a design and development engineer for three years with another manufacturer.

Wolverine Tube, Div. of Calumet & Hecla, Inc.—KENNETH B. SHAW has been appointed wholesaler sales representative in the Philadelphia metropolitan area.

Recold Corp.—Appointment of ROBERT K. FLEMING as northwest district manager has been announced. Fleming, who will cover Oregon, Washington, Idaho, Montana, and western Canada, was formerly associated with Refrigerating & Power Specialties Co. and Sunset Electric Co. of Portland, Ore. WILLIAM C. RYAN, formerly head of sales and traffic for United Freight Service, Los Angeles, has been named to the newly-created position of traffic manager for Recold.

Airtemp Div., Chrysler Corp.—ROBERT L. FORSBERG has been appointed director-market research. He has been with Airtemp since 1936. ROBERT P. VARTON, formerly comptroller of the Plymouth Body plant in Detroit, has been named comptroller.

Dunham-Bush, Inc.—ROBERT H. SCHULZ has been assigned to the Milwaukee sales office and will handle sales of the company's cooling products in northeast Wisconsin, upper Michigan, and the Michigan Peninsula. He was formerly branch manager for Minneapolis-Honeywell Regulator Co.

Bryant Mfg. Co.—GILBERT A. PECK has been appointed branch operations manager in the sales department. Formerly sales specialist in the eastern region of Carrier Corp.'s Unitary Equipment Div., Peck will coordinate and supervise the business operations of Bryant's seven factory sales branches in Boston, New York City, Paterson, N. J., Cleveland, Detroit, Chicago, and St. Louis.

Bohn Aluminum & Brass Corp.—Appointment of PAUL C. BAILEY as manager of sales and manufacturing of the Brass Div. has been announced. He was formerly sales manager of the division.

United Cork Cos.—DON D. W. LAMBERT, JR., manager of the Albany branch, has been appointed manager, New England Div. He succeeds PORTER L. SWIFT, who has retired after 38 years with the company. Lambert will continue to serve as Albany manager and will be assisted in that post by EDWARD A. O'CONNOR, formerly with National Dairy Products Co. Swift, a director and vice president of the parent company, will continue in these capacities and will serve as a consultant to the New England Div., whose offices are in Watertown, Mass.

Geyer Advertising, Inc.—JAMES E. SMYTH has been appointed director of merchandising on Kelvinator and Leonard major electric appliances. He will continue to make his headquarters in the agency's Detroit office.

Heater & Tank Div., John Wood Co.—WALTER S. SEPURA has been appointed vice president and plant manager of the division plant in Chicago. He has been factory manager of the company's Bennett Pump Div. plants at Muskegon and Hart, Mich. since 1952. Sepura succeeds JOHN F. HERBERT, who will continue to serve the Heater & Tank Div. as technical assistant to the plant manager.

Revere Copper & Brass, Inc.—New managerial appointments at the Michigan Div., Detroit, are: G. JOHN GAMBER, manager-merchandise sales; WESTON JENKINS, manager, industrial sales; and JOHN M. WALKER, manager, aluminum sales. All were formerly assistant sales managers in their respective fields.

Other division appointments: CLYDE A. GLENN as special executive representative; WILLIAM C. BOON, assistant sales manager, interdivisional sales; BERNHARD STROH, industrial sales representative, Detroit district sales office.

Ilg Electric Ventilating Co.—A. PHELPS LANGTRY has been appointed sales engineer to the Chicago sales office.

Timken Silent Automatic Products—ROBERT J. TRAVIS has been appointed a district representative in New York. He was formerly vice president and treasurer of H. S. Travis, Inc., heating and cooling equipment distributor in Norwich, N. Y.

Plant Vacation Schedule

Shutdowns Starting Prior to AUG. 15

Company	Shutdown Period Plant	Office	Shipments From Plant
Ace Pump Corp.	8/4 -8/15	Open	Regular
Acme Industries, Inc.	8/2 -8/17	8/2 -8/17	Emergency
Addison Products Co.	8/11-9/1	Open	None
Airtemp Div., Chrysler Corp.	8/4 -8/17	8/4 -8/17	Emergency
Anemostat Corp. of America	8/4 -8/17	Open	Regular
Aurora Pump Div., N. Y. Air Brake Co.	8/2 -8/17	8/2 -8/17	Emergency
Automatic Machine Products Sales Co.	8/1 -8/10		None
Bendix-Westinghouse Automotive Air Brake Co., Evansville Div.	8/11-8/29	8/11-8/22	Emergency
Buffalo Forge Co.	8/2 -8/17	Open	Emergency
Carrier Corp. (Syracuse)	8/4 -8/22	Skeleton	Limited
Copeland Refrigeration Corp.	8/4 -8/17	8/4 -8/17	Stock Only
Eastern Industries, Inc., Norwalk Plant	8/11-8/24		Emergency
Friedrich Refrigerators, Inc.	8/9 -8/24	8/9 -8/24	Regular
General Electric Co., Home Heating & Cooling Dept.	8/4 -8/17	8/4 -8/17	Regular
Room Air Conditioning Dept.	8/11-9/1	8/11-9/1	None
Morrison Products, Inc.	8/8 -8/24	8/8 -8/24	None
Paragon Electric Co.	8/3 -8/10	8/3 -8/10	None
Payne Co.	8/8 -9/1	Open	Regular
Penn Controls, Inc.	8/2 -8/17	8/2 -8/17	Emergency
Sherer-Gillett Co.	8/3 -8/10	8/3 -8/10	Stock Only
Tecumseh Products Co.	8/2 -8/24	Open	Regular
Temprite Products Corp.	8/11-8/22		Regular
Torrington Mfg. Co.	8/1 -8/17	8/1 -8/17	
Trion, Inc.	8/4 -8/17		Stock Only
Tyler Refrigeration Corp.	8/4 -8/8	Open	Stock Only
Vilter Mfg. Co.	8/4 -8/19	8/4 -8/19	Stock Only
Westinghouse Electric Corp., Air Conditioning Div.	8/11-8/29	8/11-8/15	11-15 Emer.
		18-29	Stock Only
Wilson Refrigeration, Inc.	8/4 -8/10	8/4 -8/10	Stock Only

FLEXON VIBRA-SORBERS®

CLEAN . . . INSIDE AND OUT!

NOW AVAILABLE FROM FLEXONICS

Flex-O-Tube synthetic Freon-resistant hose for refrigeration and air conditioning service. Also, flexible metal connectors for circulating pumps. Write for information.

Here's positive protection against the introduction of dirt and foreign matter into refrigeration and air conditioning systems. Flexon Vibra-Sorbers, come to you clean in sealed polyethylene bags.

Prior to this operation, Vibra-Sorbers are bathed in solvents, pickled, multiple washed and dried in infra-red dryers. For trouble-free installations use Flexon Vibra-Sorbers, the preferred way to isolate vibration in compressor piping. U.L. listed in sizes ⅜" through 1½" *for both high and low side service.* Standard sizes to 8" available. Write for Bulletin 139, today.

V-24

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Manufacturers of flexible metal hose and conduit, expansion joints, metallic bellows and assemblies of these components.
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Sure, everybody likes to make a buck go farther. At the Harry Alter Co. we think our prices are *always low.* And everybody big or small, city or country, pays the same fair price. Our transportation allowance saves you even more money. (And if you pick up at one of our 6 counters, you still get this allowance.)

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SAVE MONEY, time and effort by ordering from our new *Dependabook,* the most complete catalog of all. 160 pages. Over 10,000 items carried in stock. *Wholesale only.* Your orders filled really fast by mail, or picked up at one of six big warehouses.

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FREE PARKING AND FAST COUNTER SERVICE AT THESE 4 BIG WAREHOUSES

2,430 FROZEN FOOD PACKS

and two-side shopping in Warren's new Twin-Isle!*

Maximum capacity in minimum floor space was the problem presented to Warren by retailers everywhere, and 76 years of experience and research paid off again—with the space-saving, big-capacity Twin-Isle Merchandiser.

The Twin-Isle offers two-side shopping from **two** compartments **—yet one refrigerator**—holds 2,430 frozen-food packs or 2,160 pints of ice cream, and is only 58" wide over-all. Offers twice the variety of a conventional low-temperature display case!

Lower total investment in cases themselves, less comparable horsepower per lineal foot, *installation costs cut in half,* and a drastic reduction in cost of operation. Another fine example of product result from Warren's CONTINUOUS RESEARCH Program.

- COLORAMICS® Bands optional at no extra cost.
- Four-shelf merchandising canopies available.

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this much floor space SAVED!

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EXPORT DIVISION: P. O. BOX 27084, LOS ANGELES, CAL.

ASHAE-ASRE Educational Conference--

(Concluded from Page 1)

ing and cooling engineers "backed into the industry," Chaddock felt that a major reason for this is the lack of a generally accepted curriculum in mechanical engineering which provides the necessary broad background while, at the same time, offering specific knowledge in heating and cooling.

Outlines 'Synthetic Curriculum'

Chaddock recommended the admittedly arbitrary and synthetic curriculum shown in Table 1. He would treat refrigeration and air conditioning under engineering analysis and design.

Content of the course, as he sees it, should include such things as simultaneous heat transfer, vibration, noise control.

"The course must include design problems which stimulate any latent creativity in the student; an undergraduate thesis would be a valuable tool in this regard," offered Chaddock.

Industry already has an obstacle or two to overcome with reference to students' attitudes toward the refrigeration and air conditioning employment, declared W. F. Stoecker, University of Illinois. While they tend to think of it as a clean, respectable, and helpful field of employment, and one in which a man can look forward to going out on his own, they also recognized that the cooling field is not one which encourages or offers opportunities for high level engineering work, salaries tend to be low, and advancement to high position comes most often to people in sales and administration, not to engineering and technical personnel, Stoecker stated.

Such facts as those cited by Stoecker point out how important it is to reach young people at the high school level, if we are to interest them in air conditioning and refrigeration, according to B. H. Jennings, director of research, ASHAE Research Labs, Cleveland.

"We must keep in mind those factors which contribute to the high school student's concept of future employment," Jennings advised. "These young people are influenced by reading, movies, television, people—and the availability of jobs.

"In their reading material, they like to read about career opportunities. Our industry must make more literature available to them. In fact, even the high school teachers could use literature and information on the industry.

"It's my own observation," Jennings continued, "that the overwhelming number of people in air conditioning and refrigeration backed into the field from some other or got in by happenstance, not be design."

Technical institute level courses are an ideal area in which students can be influenced and trained for the industry, he offered.

"Even a simple thing like preparing and distributing instructional films for showing to students and clubs would be a tremendous step in the right direction," Jennings suggested.

P. B. Gordon, vice president of Wolff and Munier, Inc. New York, emphasized that available statistics show that very few technical institute or engineering graduates actually choose to enter the cooling field.

"We can't just sit back and bemoan the situation," Gordon insisted, but we can take some definite action." He recommended:

1. More cooperation with colleges — "Improve public relations. Interest teachers in associations and societies, thus instilling interest in the 'pipeline' to students and the public."

2. Cooperate with post-graduate students — "Sponsor research projects; allow for publication of findings so individual's prestige is enhanced."

3. Up-grade young engineers —"Get them out of routine duties; pay them well, so they don't feel obligated to get into sales or administration to make a good living."

4. Encourage establishment of technical institute training in the field—"keeping in mind that this will have to be essentially a local endeavor, where the graduates can readily be absorbed by the industry in the geographical area served by the school."

From the floor came a request for "a specific estimate of the need for engineers in the cooling industry. We talk in generalities about the great shortage of engineers, which doesn't seem to be reflected in either starting salaries or in job availability.

"Does the industry have an annual need for 10 or 100 or 1,000 engineers?"

General discussion which followed this question brought out that "perhaps we aren't being completely honest with our students when we give the impression that there is a great backlog of demand for engineers. While there will definitely be a continuing need for them, it probably isn't as great as would be indicated by all the current publicity."

Table 1—Recommended Curriculum for Mechanical Engineering

		hours
1.	**Humanities**	24
2.	**Basic Science**	
	Physics	16
	Chemistry	8
	Math	12
3.	**Engineering Sciences**	
	Solid Mechanics	9
	Fluid Mechanics	4
	Thermodynamics	8
	Heat-Mass Transfer	4
	Materials & Materials Processing	9
	Electrical Theory	4
4.	**Engineering Analysis & Design**	
	Machine Design	6
	Mechanical Engineering Problems	3
	Thesis	3
5.	**Electives**	30
	Total	140
	Heating-cooling subjects to be taught under (4)	

Prof. Richard J. Panlener, Marquette university, spoke of the "out of phase" relationship involved in the demand for engineers and technical people.

"There may be a real demand for people today, but by the time they finish their four or five years of training, the demand has lessened."

However, some figures were offered which seemed to indicate that the dropoff in demand for engineers is less than the dropoff in other fields.

C. M. Ashley, chief staff engineer, Carrier Corp., complained that "far too many colleges present problems which already have been solved, which already have an answer. This never happens in industry, and college training could be more valuable if made more realistic."

Ashley stressed that "if a man is interested in true research, high technical ability is paramount; if he's thinking of sales engineering, human relations exceed technical ability in importance. In most other areas, these two characteristics are needed in intermediate amounts."

Even Research Engineer Must Communicate

Even the research engineer, he admitted, must have the ability to communicate, both orally and in written reports. "Ideas must be sold to management, or they will die on the board," he warned.

Ashley accused mass education of failing to stimulate creativity; in fact, mass education frequently stifles creativity, he complained. He admitted, however, that industry could do much to help education encourage creativity. In his words, "Industry should give its proper share of encouragement and support by sponsoring research projects, giving instructors sabbatical jobs in the field, giving equipment."

Industry, too, must refrain from expecting engineering graduates to have a knowledge of engineering practice as soon as they leave school. "It is the place of the factory school to help give him this knowledge," Ashley held, "and it may take five or ten years for a man to become truly productive."

This time can be shortened considerably by cooperative training wherever this is possible, he concluded.

The idea of college instructors working in and with the industry is a good one and extremely important.

"In addition, the instructors should be active in technical societies and trade associations; they should take active part in industry-related research projects. Only then are they fully qualified to do their best in the important task of finding correct employment for the engineering graduate," said Stoecker.

Absolute honesty is the primary concern in working for the student's employment, Stoecker held, honesty with both student and potential employers.

CORRECTION

Tecumseh Products Co. will not make any shipments from its plant during its vacation period, Aug. 1 to 18, Al Russell, advertising manager, has announced. This information corrects the dates and information given in the Plant Vacation Schedule published on page 27 of this issue. The office will remain open as scheduled.

We Go to Great Lengths

to provide the right size valve for the right size job.

WATSCO LINE TAP VALVES

RANGE FROM 3/16" to 5/8" INCLUSIVE

U.S. Pat. No. 2,827,913

A lifetime tool designed expressly for Watsco Line Tap, Can Tap and Line Port Valves.

PATENT APPLIED FOR.

PART NO. CV-1 PART NO. CV-2

EACH JOB A CUSTOM INSTALLATION. EACH VALVE THE SAME LOW PRICE.

Small and compact, Watsco tapping valves are easily installed . . . Handy inexpensive ports for charging, discharging and testing open and hermetically sealed units . . . No top heavy assembly . . . Will not loosen or leak due to vibrations . . . . . Will not crimp tubing.

For O.D. Tube	Part No.	For O.D. Tube	Part No.
3/16"	LT-3	3/8"	LT-6
1/4"	LT-4	1/2"	LT-8
5/16"	LT-5	5/8"	LT-10

Watsco line tap valves offer maximum protection with exclusive "3 point sealing."

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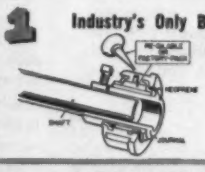

Lighter loading, longer life.

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9" through 15" sizes; for quiet hi-speeds.

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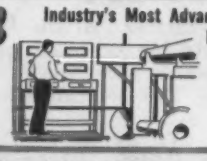

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All you need to know about air movement.

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Refrigeration Problems
And Their Solution
(As Written by Paul Reed)

Electric Solenoid Valves (3)

So far we have been considering the "direct acting" type, of solenoid valve, in which the solenoid coil acts directly on the valve needle, opening and closing the main port of the valve. Since this is limited by practical considerations, to a valve port of about ¼ in. in diameter for liquid line use, some means must be found and has been found, to operate solenoid valves with ports larger than ¼ in. in diameter.

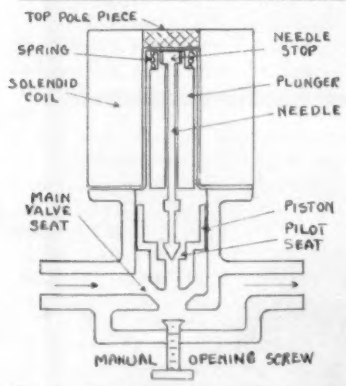


Fig. 3—Pilot type solenoid valve in open position.

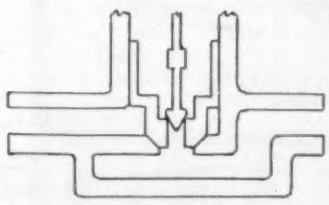


Fig. 4—Pilot closed, piston down, and main port closed.

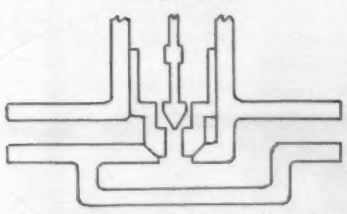


Fig. 5—Pilot open, piston ready to start upward.

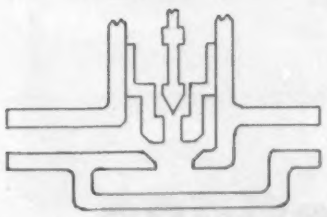


Fig. 6—Pilot open—piston has now opened main port.

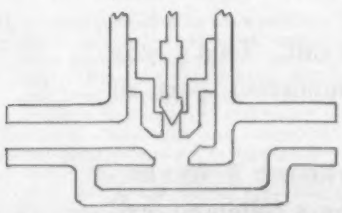


Fig. 7—Pilot closed—piston ready to start downward.

This is done by the "pilot" type solenoid, also sometimes called the "piston" type. In it, the coil still operates a small needle valve in a small port ¼ in. or less in diameter; but in addition, there is a large, main port which is opened and closed by a movable member or "piston," and this piston is actuated or caused to move by the flow of the refrigerant itself.

All the small needle (now called the "pilot") does, by opening and closing, is to create differences in pressure drop across the large, main valve; and these differences in pressure operate the large piston, thus opening and closing the main port of the valve.

Figs. 3, 4, 5, 6, and 7 illustrate how this works. Fig. 3 illustrates the complete pilot-type solenoid valve. Figs. 4, 5, 6, and 7 illustrate successive steps in the operation of the pilot needle and the piston.

In Fig. 4 the current is off, and the pilot needle is against the pilot seat, thus closing the pilot port. This piston, which acts as the movable member of the main valve, is against the main port, so the main port is closed.

The main piston fits its cylinder fairly well, but it is not a pressure-proof seal. The high pressure on the left can and does seep past the piston and gets above the piston. Since the pilot valve and the main valve are both closed, the high pressure above and inside the piston acts to push the piston down on its seat, against the lower pressure underneath the piston. So the main valve stays closed as long as the pilot port is closed.

PRESSURE DIFFERENCE OPERATES PISTON

When the current comes on, the coil raises the plunger and needle valve on the pilot, thus opening the pilot port as in Fig. 5. Now the pressure above and inside the piston can leak out to the low pressure below the valve. The pilot port, although small compared to the main port, is larger than the clearance between the piston and its cylinder.

Therefore, the pressure above and inside the piston can leak out to the low pressure below the piston, faster than the high pressure can leak around the piston into the spaces above the piston. Thus, the high pressure can push the piston upward, for now the high pressure below the piston and tending to open the valve by pushing upward, is greater than the pressure above and inside the piston, tending to push it downward and close the valve.

Thus, the main piston rises to the open position as in Fig. 6, and stays there as long as the current is on, the needle valve is raised, and the pilot port is open.

When the current is cut off, the needle drops and closes the pilot port as shown in Fig. 7. Now the high pressure leaking past the piston creates a high pressure above and inside the piston, for the pilot valve is closed and the high pressure is trapped above the piston. So the piston is pushed downward against the main seat, thus closing the main valve.

PRESSURE-DROP ACROSS MAIN PORT

There must be some pressure-drop across the main valve, even when the piston is open; otherwise, there would be no difference in pressure above and below the piston and the piston would drop and close of its own weight.

The greater the pressure-drop across the main port, the greater is the pressure difference tending to open the piston, and the farther the piston is pushed upward. Thus the capacity of the pilot-type solenoid valve increases with the pressure-drop across the valve.

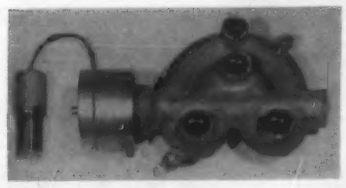
A pressure-drop of about 2 p.s.i. is required to successfully open the main valve so the capacities of pilot-type solenoid valves are usually rated on the basis of a 2 p.s.i. pressure-drop across the main valve port.

There are variations of this general principle of pilot action, but they all depend on the pressure differences to operate the main piston, and on the small pilot to shift the pressure differences one way or the other—to open the main valve when the pilot is open, and to close the main port when the pilot is closed.

In fact, at least one manufacturer makes a separate piston valve, without pilot, but with inlet and outlet connections for a pilot. This valve can be operated by any type of pilot valve—hand valve, solenoid valve, etc. It can even be the modulating type.

The main piston valve not only opens and closes as the pilot valve does, but modulates in step with and as the pilot valve modulates its flow. Thus, by means of this valve, a small valve of any type can be used to control flow of liquid or gas in a large line.

(To Be Continued)



Indico Field Tests Solenoid Actuated 4-Way Reversing Valve

CHICAGO — Now being field tested by Indico Valve Corp. here is a solenoid actuated, 4-way pilot operated reversing valve for heat pump air conditioners and reverse cycle hot gas defrost applications.

The reversing valve is designed for use with open-type compressors, and a principal feature is that it is completely serviceable without removal of refrigerant lines. It was developed by Herman L. Dilliner, Norwin J. Eisenman, and William B. Ingram.

The designers claim that positive "O" ring assembly seals give hermetic reliability, and that the valve has positive controlled shifting action.

It is also said that effective gas or liquid seals are provided because of precision hard chromium and nylonvalve action in a cast body. Full porting assures minimum pressure drop, the designers state. Another claim is that the valve design assures minimum heat transfer.

The valve may be operated in any position, and a choice of pilot positions is provided.

General Filters Ups Humidifier Output

NOVI, Mich.—Sales on the new "General 800" humidifier have been so successful that a temporary second assembly line had to be set up, according to Mrs. Grace Redner, president of General Filters, Inc.

Says Mrs. Redner, "We are not concerned about the recession here. Our problem is keeping up with the demand."

Harold E. McGregor Wins Distinguished Service Award for '58

NEW YORK CITY — Harold E. McGregor, Fitchburg, Mass., is the recipient of the Distinguished Service Award for 1958—a citation given each year to that member of the Mechanical Contractors Association of America, Inc. who has made "the most outstanding contributions to both the industry and the national association," the MCAA announced.

Guerra Elected

BUFFALO — John P. Guerra has been elected president of the Western New York Chapter, American Society of Heating & Air-Conditioning Engineers. He is chief engineer of the Heating and Residential Air Conditioning divisions of Fedders-Quigan.

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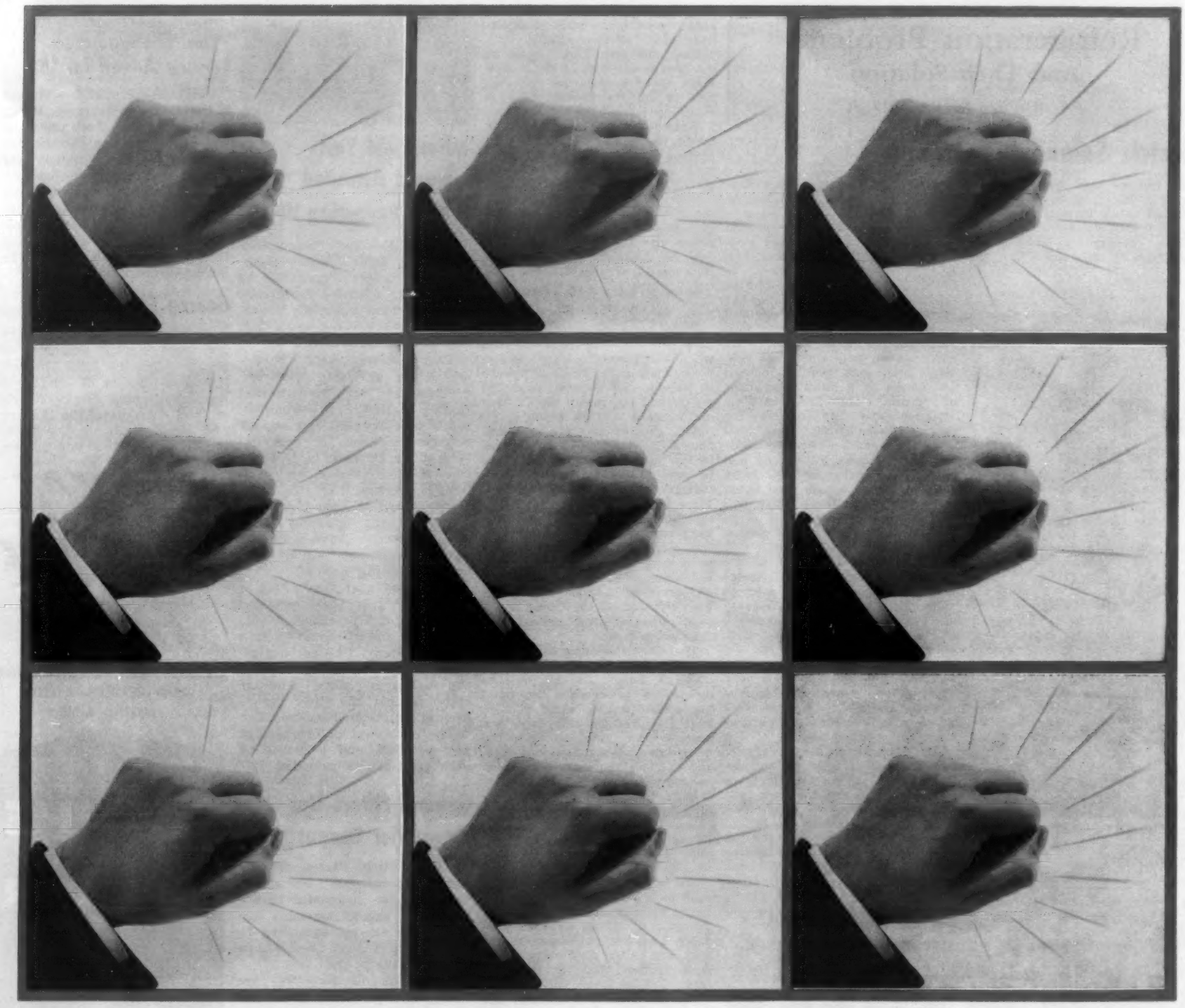

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NLRB Official Says

'Hiring Hall' Contracts Can Be Legal with Proper Safeguards

LAKE PLACID, N. Y.—Safeguards that must be included in any union-employer agreement for operation of exclusive hiring halls were listed recently by Jerome D. Fenton, general counsel for the National Labor Relations Board.

They are:

"1. Selection of employes shall be on a non-discriminatory basis and shall not be based upon, or in any way affected by, union membership, bylaws, rules, regulations, constitutional provisions, or any other aspect or obligation of union membership, policies, or requirements.

"2. The employer retains the right to reject any job applicant referred by the union.

"3. The parties post in appropriate places all provisions relating to the hiring arrangement including the safeguards already outlined.

"The board emphasized one additional point," Fenton said, "namely, that even a hiring hall provision that is lawful on its face will not protect the union or employer if, in fact, the hiring power delegated to the union is being exercised in a discriminatory manner."

Fenton outlined these safeguards in a talk before the Building Industry Employers of New York State meeting here recently.

He mentioned them in explaining that the NLRB did not require the elimination of all hiring halls in its precedent-setting Mountain Pacific decision last April. That decision was made in a case involving the Mountain Pacific chapter of the Associated General Contractors.

"It was the complete surrender of the hiring perogative by the employer to the union that proved fatal to that contract.

"The evil aimed at (in that decision) was unfettered union control of all hiring which would recreate the outlawed closed shop," Fenton explained.

"The board left ample room for unions and employers to operate under exclusive hiring hall arrangements where certain safeguards were provided."

Fenton also referred to the fearsome "Brown-Olds" remedy, which NLRB has announced that it will apply after Sept. 1.

The Brown-Olds remedy holds the employer and union jointly responsible for reimbursing to all employes all dues and other fees collected under contracts including closed shop and other forbidden hiring practices.

Unions and employers with cases pending before the board have been given until Sept. 1 to eliminate such requirements from their contracts without penalty.

"I should point out," he said, "that this moratorium applies only to the application of the Brown-Olds remedy and that the correction of illegal practices cannot affect the normal processing of pending cases in other respects."

Fenton explained that even before Brown-Olds, the NLRB had required "disgorgement" of dues to all employes by both union and company where the closed shop involved a company-dominated or supported union.

"So what the Brown-Olds case did was to extend the broad reimbursement order, theretofore reserved for Section 8(a)(2) situations, to payments coerced under illegal union security or hiring arrangements with any unions even if not employer-dominated or supported," he said.

Wanamaker--

(Concluded from Page 1, Col. 4)

example of how an existing structure can be modernized—with the assistance of air conditioning—to assume new usefulness in metropolitan areas.

The first problem confronting those contemplating installation of new air conditioning and heating equipment was a lack of adequate power. Mains of the New York Steam Corp. did not run close enough to the building. To get adequate electric power, new transformer vaults would have to be brought in, which would have caused delays and other problems.

The consulting engineer surveyed the eight old coal-stoked furnaces in the basement and converted them into high-pressure steam units for driving turbines which make possible the air conditioning of the building.

Each floor was divided into a minimum of eight zones for air conditioning and heating. Some floors have as many as 14 zones. One unusual feature of the system is that it cools some interior areas of the building while certain other exterior sections are being heated.

In some of the floors with a height of 12 to 13 ft., hung ceilings were installed to reduce the room height to about nine feet, and facilitating the construction of air conditioniing ducts and installation of lights.

The consulting engineering firm estimates that the air conditioning for the remodeled building was installed at a cost of less than $700 a ton. Area taken for the risers and equipment was less than 2% of the net rentable area of the building, and the basement was salvaged for rentable use and for units to service the structure.

Some of the occupants, including the Ordnance Department of the Army with a special gauge laboratory, require air conditioning on a 24-hour basis.

Raisler Corp. installed the air conditioning with the exception of the first three floors, which was done by the Rose Plumbing and Heating Corp.

Airtemp--

(Concluded from Page 1, Col. 2)

ers to big systems for commercial applications.

Lists of dealers who handle the Airtemp line in the area are included, but the lists are separated by type of product.

Although the campaign has only been running since the first of July, Airtemp officials report that a flow of "pay-off" certificates from dealers is being noted.

Local 725 Wins First Place In Florida Pipefitting Contest

MIAMI, Fla.—For the fourth straight year, Local 725 of the United Association captured first place in the pipefitting category of the annual state of Florida plumbing and pipefitting contest, according to George Meyers, educational coordinator of the local.

Harry Pollard, who won the fourth year apprentice competition last year and the fifth year apprentice competition this year, will representa Florida at the international finals at Purdue university, Aug. 10-15.

Richard Sullivan won the fourth year apprentice competition this year.

Commented Meyers, "We are justifiably proud of our record of never having lost any phase of the state contest. But even more important than winning contests, we are turning out qualified mechanics."

You Asked About It

From the many requests for information it receives, the NEWS will select and publish some of general interest. In many instances, the answers will be supplied by authorities in the industry.

Q. I am in the process of moving a walk-in freezer formerly used for holding frozen mink food at 0° F. The unit is an automatic hot gas defrost blower unit with an 8-in. wall construction cabinet. The purchaser wishes to use the unit for ice storage.

What is proper storage temperature? Will defrosting be a problem? Will a drain in the floor be necessary? (Present floor has a steel plate cover.)

H.C.C.—Whiteater, Wis.

A. Both George Winkelman, application engineer of C. Schmidt Co., Cincinnati, and Robert L. Hortz, sales engineer of Fogel Refrigerator Co., Philadelphia answered that the cabinet can be used for ice storage, and that a floor drain will not be necessary. Hortz does recommend that the unit be placed on a wood rack over the steel plate floor to permit air circulation.

Ice is stored at 24° to 28°. Thus the condensing unit will have more capacity than needed so that it can be used with a thermostatic control, says Winkelman.

He adds that "the condensing unit is likely a low temperature unit and if a belt-driven type, the pulley will have to be changed to slow down the compressor and prevent overloading the motor.

"If the unit is a low temperature hermetic, a suction regulating (hold-back) valve can be used in the suction line ahead of the compressor to prevent motor overloading."

Winkelman also suggests that the ice be stored on racks keeping it away from the floor and walls of the cabinet.

FHA Reports Record Volume--

(Concluded from Page 1, Col. 2)

vate home starts in June hit a seasonally adjusted annual rate of 1,090,000, highest since August, 1956.

Included in FHA's new record volume were 33,427 units in new homes, about 3% less than the 34,558 reported for May but more than double the volume for June 1957. Still another new all-time record of 57,172 units in existing dwellings was included, an increase of 3% over the previous record of a month earlier.

For the first half of 1958, application under all programs have covered over 462,000 units—an increase of nearly 85% over the same period last year—with 162,000 units in new homes, 252,000 in existing homes, and nearly 48,000 in rental and cooperative projects.

Dwelling units started in June under FHA inspection totaled more than 27,900—the largest volume reported for any month since 1955—and brought the half-year total to 117,700 units, an increase of more than two-thirds over the first six months of 1957.

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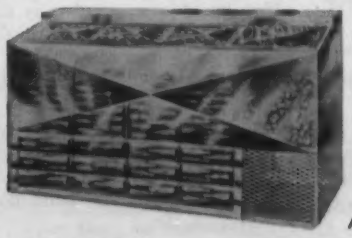

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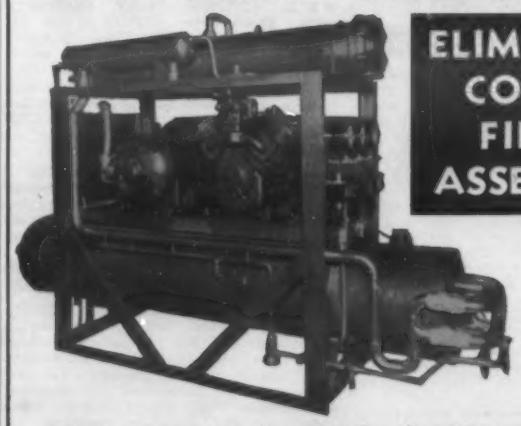

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Servicing Automobile Air Conditioners

(Vol. 2)

BY C. DALE MERICLE

OLDSMOBILE (2)

Oldsmobile Div.
General Motors Corp.
Lansing 21, Mich.

Wiring

Wiring diagram of the 1956 Oldsmobile system is shown in Fig. 5.

Fig. 6 shows the wiring diagram of the 1957 Oldsmobile system.

SERVICE HINTS

Evacuating System

Use of a vacuum pump to evacuate the system following initial installation or service involving opening of the system is recommended by Oldsmobile.

The compressor itself, can be used for evacuation, according to Oldsmobile. In either case the double evacuation method is employed. The system is pulled down to 28 in. of vacuum, held there for at least five minutes, and the vacuum broken with Refrigerant-12. A vacuum of 28 in. is again pulled for five minutes. The system is now ready for charging.

Charging System

Oldsmobile air conditioners are charged through the low side with Refrigerant-12 vapor. Charge is 3¾ lbs. in 1956 units; 4⅞ lbs. in 1957 models.

During the charging operation car engine should be operated at 1,500 r.p.m.

If the ambient temperature is 70° to 80°, blower switch should be set for high speed; if ambient is 80° to 90°, blower switch should be set for medium speed; if ambient is 90° or above, operate blower at low speed.

On 1956 models the temperature control lever should be against the detent while charging; on 1957 models the temperature lever should be in full right position and the "Normal" pushbutton depressed.

The above conditions should also be observed when checking the sight glass for proper charge of refrigerant.

Road Test

A road test is suggested by Oldsmobile to determine if the discharge air temperature is standard. If the discharge air temperature is not standard, however, a performance test must be made to diagnose the complaint.

In making the road test, the car should be driven at 20 m.p.h. with the car windows and doors closed. A thermometer is placed in the left air discharge nozzle.

On 1956 models the temperature control lever should be against the detent to permit 100% outside air. On 1957 models the control lever should be extreme right and the "Normal" pushbutton depressed to permit 100% outside air.

After temperature readings are taken, the car should be driven in the opposite direction to cancel any wind effect.

It is also necessary to determine the temperature and relative humidity of the outside air.

Correct discharge air temperatures should be as follows:

Ambient Temp. (°F.)	Relative Humidity (%)	Discharge Air Temp. (°F.)
70	50	43
70	60	43
70	90	44
80	50	46
80	60	48
80	90	54
90	40	52
90	50	54
90	60	58
100	23	55
100	40	61

Performance Test

If the foregoing road test results in discharge temperatures substantially different from those listed, a "performance" test should be made to diagnose the trouble.

The performance test should be made with the car doors and windows closed, an auxiliary fan in front of the car radiator, the air conditioning blower on high speed, the car hood as far down as possible, and the hood-to-cowl openings covered to prevent engine heat from entering the cowl intake.

On 1956 models the temperature control lever is set against the detent in the slot. On 1957 systems the control lever is in extreme right position and the "Normal" pushbutton depressed.

Principle of this performance test is to adjust the engine speed so that an evaporator pressure of 34 p.s.i.g. is maintained constantly. Then the resultant readings of engine speed, discharge air temperature at the left nozzle, and head pressure are compared with those listed in the accompanying chart. Departures from the normal readings as listed in the chart provide a clue as to the trouble.

Test is made with high pressure gauge connected to service valve on compressor and suction gauge connected to Schrader valve in suction line at outlet of evaporator. Engine speed is varied as required to maintain 34 p.s.i.g. in evaporator and a stabilized discharge temperature at the left nozzle.

After pressures, temperatures, and engine r.p.m. are noted and compared with chart, the suction gauge can be connected to suction service valve on compressor after first setting engine speed to ensure maintaining 34 p.s.i.g. in the evaporator.

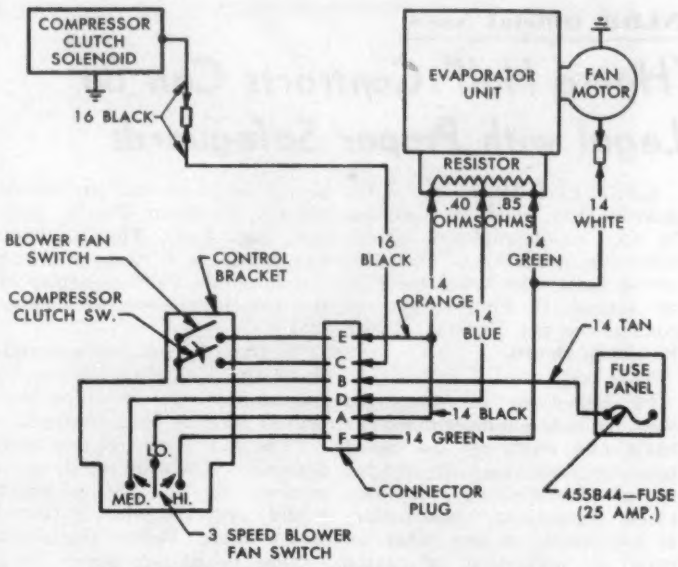

FIG. 5—Wiring diagram of 1956 Oldsmobile air conditioner.

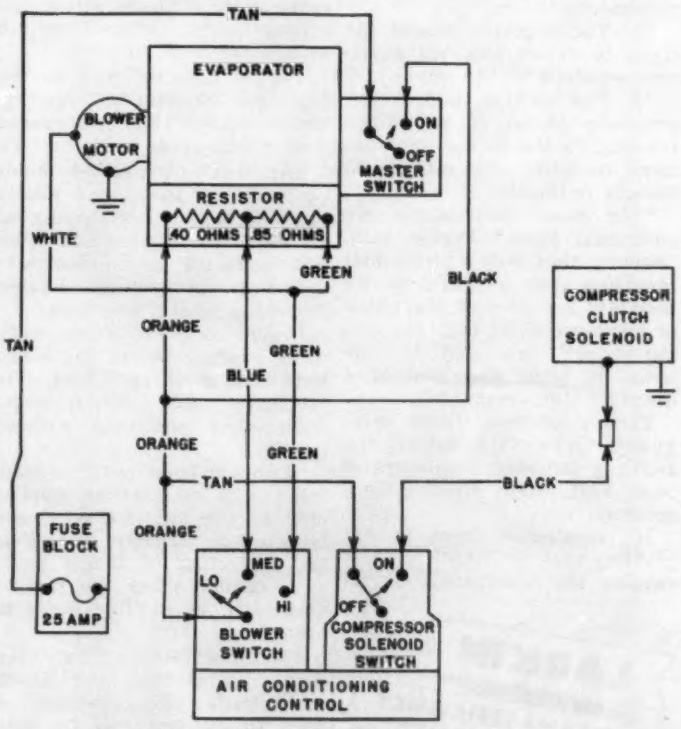

FIG. 6—Wiring diagram of 1957 Oldsmobile air conditioner.

Diagnosing Test Results

Temperature, pressure, and engine speed readings observed during the performance test can be interpreted in the following list of conditions and probable causes:

Engine r.p.m. too high.

A. Defective or improperly adjusted by-pass valve.
B. Restriction in suction line.
C. Loose drive belts.
D. Defective or improperly adjusted magnetic clutch.
E. Defective or improperly adjusted (1956) expansion valve.
F. Expansion valve capillary bulb not tight to suction line.

Head pressure too high (with high engine speed).

A. Engine overheated.
B. Restricted air flow through condenser.
C. Air in system or overcharge of refrigerant.
D. Restriction in condenser, receiver-dehydrator, or liquid line.

Engine r.p.m. too low.

A. Shortage of refrigerant.
B. Restricted air passages.

Discharge air too warm (with other readings okay).

A. Air hoses not properly connected.
B. Defective or improperly placed evaporator drain hoses.
C. Poor seal between evaporator and dash.

Discharge air velocity too low.

A. Evaporator air passages restricted.
B. Air hoses restricted.
C. Blower motor defective.
D. Blower switch defective.
E. Loose wiring connections.

Frost-back on suction line.

A. Defective or improperly adjusted (1956) expansion valve.
B. Defective or improperly adjusted by-pass valve.

Sweating of air outlets.

A. Heater vent valve not completely closed.
B. Air leak at dash or toe pan.

Inoperative controls (1957).

All vacuum-operated diaphragm controls should move with 10-in. vacuum.

Adjusting By-Pass

Hot gas by-pass valve is normally set so that evaporator pressure will not drop below 29 to 30 p.s.i.g. If the pressure drops below this point, icing of the coil may result. If the valve is so set that pressure won't come down to 29 to 30 p.s.i.g. there may be insufficient cool-

(Continued on next page)

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WE NEED three or four district managers to round out our present staff. If you can sell, we will pay you well for your ability. Our business is moving at a pace above the industry average. Experience in selling food chains, super markets or wholesale grocers (shelving, refrigeration, checkouts, etc.) would be advantageous. Now is the time to move up. If you are ready for a change that offers an opportunity equal to effort expended, you'll want to contact us. John S. Twist, vice president of sales, SHERER-GILLETT COMPANY, Marshall, Michigan.

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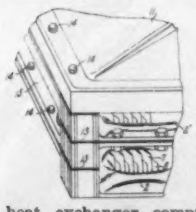
FOR SALE—Well established commercial refrigeration company doing a very large volume of business. Have Frigidaire franchise, G.E., Frigidaire and Carrier air conditioners. Located in Lynwood, a suburb of Los Angeles, California. Will sell building separately or the complete business. A real bargain. Cash, or terms, if satisfactory. We also have many large service and sales accounts since 1947. BOX A6066, Air Conditioning & Refrigeration News.

COMMERCIAL REFRIGERATION and air conditioning sales & service established 15 years. Located in mid central Great Lakes town. Owner is tired and wishes to take things easier. Will sell all or part interest to capable sales minded person. All replies will be strictly confidential. BOX A6069, Air Conditioning & Refrigeration News.

PATENTS

Week of May 13 (Concluded)

2,834,582. PLATE HEAT EXCHANGER. Richard Kablitz, Berlin-Schoeneberg, Germany. Application June 11, 1954, Serial No. 436,178.



3. A heat exchanger comprising a plurality of superposed plate elements, each having a pair of opposed substantially planar surfaces and a flange curved out of the plant of said surfaces, the flange of one plate element being connected fluid-tightly to and being substantially coextensive with the flange of an adjacent plate element. . . .

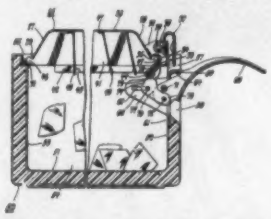
2,834,583. HEAT EXCHANGER. Oscar Oldberg, Birmingham, Mich., and Ray A. Sandberg, Waukegan, Ill., assignors to Houdaille Industries, Inc., Detroit, Mich.

1. A plate and tube assembly comprising a length of tubing, a plurality of plates stacked in closely spaced overlying parallel relation with an exterior edge of each plate lying flush with corresponding exterior edges of the other plates and with a notch formed in each of said exterior edges in alignment with corresponding notches in the other plates, said length of tubing extending through the aligned notches of the respective plates, the margin of each notch being of U-shape and being defined by interior edge portions of said plate integral with the plate. . . .

Week of May 20

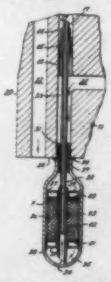
2,835,113. COMBINED ICE BLOCK RELEASING AND STORING BUCKET. Verlos G. Sharpe, Dayton, and Everett C. Armentrout, New Carlisle, Ohio, assignors to General Motors Corp.

1. In combination, a combined portable ice bucket and freezing device



support unit for selectively storing ice blocks in a refrigerator or for transporting ice blocks away from the refrigerator so as to dispense ice blocks from the unit at an ice block serving point remote from the refrigerator. . . .

2,835,114. REFRIGERATION APPARATUS. Malcolm G. Shoemaker, Doylestown, and Maurice A. Goff, Ambler, Pa., assignors to Philco Corp.



1. In a refrigerant circuit structure comprising a unitary sheet with a refrigerant passageway circuit therein and also comprising a refrigerant conditioner external to the sheet, the improvement which comprises a passageway section integrally formed in said sheet for connecting said circuit with said conditioner, said section providing a pair of ducts separated from one another but forming parts of said circuit. . . .

2,835,186. AIR CONDITIONING SYSTEM. Alfred N. Goldsmith, New York, N. Y., assignor, by mesne assignments, to Whirlpool Corp.

1. A spot air conditioning system comprising an air conditioning unit for cooling a room or the like and having means for cooling and dehumidifying the air and means for propelling the air from a housing for said unit, said housing having an air outlet and an air inlet. . . .

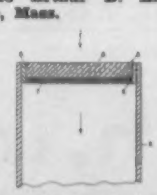
2,835,187. AIR GRILL FOR REFRIGERATING APPARATUS. Carl M. Schell, Dayton, Ohio, assignor to General Motors Corp.

1. An air grill comprising an elastromeric element forming a plurality of elongated air passages extending from the rear face thereof to the front face thereof, said faces being shiftable relative to one another so as to vary the shape of said air passages. . . .

2,835,237. PURGE CYCLES FOR PRECIPITATOR. Peter Hodson, Wellsville, N. Y., assignor to Apra Precipitator Corp., New York.

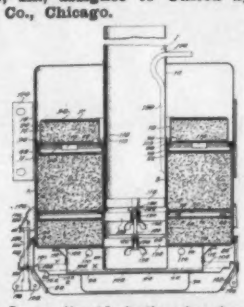
1. A purging system for an electrostatic precipitator having collecting elements between main inlet and outlet ducts comprising; purging gas inlet and outlet ducts connected to said precipitator to direct the flow of purging gas to and through the collecting elements thereof. . . .

2,835,341. FILTER CONSTRUCTION. Bienzi B. Parker, Jr., Concord, Mass., assignor to Arthur D. Little, Inc., Cambridge, Mass.



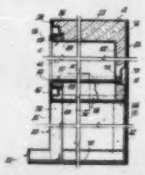
1. A filter which comprises a layer of soft filtering medium of substantial depth and a non-filtering reinforcing layer in contact with the first layer throughout its area, the reinforcing layer being porous for relatively free flow of air therethrough as compared to said first named layer comprising a thin, relatively stiff material. . . .

2,835,338. LIQUID BATH AIR CLEANER. Wilfred W. Lowther, Chicago, Ill., assignor to United Specialties Co., Chicago.



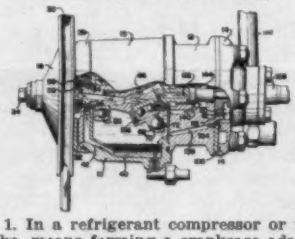
1. In a liquid bath air cleaner, a generally upright housing having an air path with a dirty air inlet and a clean air outlet, a filter element in the air path in the housing, a liquid sump cup removably attached to the lower end of the housing to provide a liquid sump and having a normal liquid level, a seat on the housing for the cup. . . .

2,835,405. REFRIGERATED CABINET STRUCTURE. Frank H. Gilbert, Leawood, Kan., and Jack C. Booher, Kansas City, Mo., assignors to Metalcraft Mfg. & Sales Corp., Kansas City, Mo.



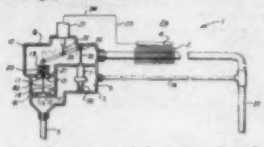
2. In a refrigeration cabinet, an open front outer shell and an open front inner tub housed within and spaced from the shell, the shell and tub each being provided with rectangular top, side and rear walls and the tub having a rectangular bottom wall; a rectangular, metallic, tubular frame disposed within the shell in spaced, surrounding relationship to said tube and secured to the marginal edges of the shell defining said open front thereof. . . .

2,835,436. REFRIGERATING APPARATUS. William K. Steinhagen, Royal Oak, John Dolza, Davisburg, and Philip L. Francis, Pontiac, Mich., assignors to General Motors Corp.



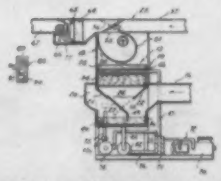
1. In a refrigerant compressor or the like, means forming a crankcase adapted to contain lubricant, a main drive shaft projecting through one wall of said crankcase, bearing means for said shaft, a cylinder block having a plurality of compression chambers circumferentially arranged relative to said shaft. . . .

2,835,446. HEATING AND COOLING SYSTEM AND VALVE THEREFOR. Earnest J. Dillman, Detroit, Mich., assignor, by mesne assignments, to American Radiator & Standard Sanitary Corp., New York.



1. A valve comprising a valve housing; port means in said housing; valve means for opening and closing said port means; one of said means including two spaced wall elements; the other means including a wall member between said wall elements; lever means for reciprocally moving said valve means to open and close the port means; first power means responsive to an external temperature for operating said lever means. . . .

2,835,476. AIR CONDITIONING APPARATUS. John Kohut, Jr., Boonton, N. J.



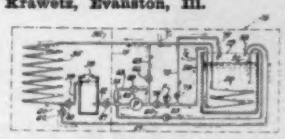
7. An air conditioning unit adapted to be located in a building, comprising: an elongated duct having an inlet end and an outlet end, a first inlet means providing for the inlet of air from the atmosphere outside the building to the inlet end of the duct, a second inlet means providing for the inlet of air from the interior of the building to the inlet end of the duct,

Editor's Note: Patents described here have been selected from the "Official Gazette" of the United States Patent Office. They offer only a brief summary of each invention. In some instances only the first part of the digest is presented

Printed copies of patents, reissued patents, and patent designs may be secured from the Patent Office; patents and reissues are 25¢ each, while designs are furnished at 10¢ each. Address orders to: Commissioner of Patents, Washington 25, D.C.

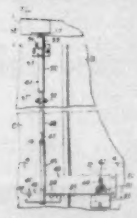
air humidifying means having a recirculated supply of water in the duct between the inlet and outlet ends thereof. . . .

2,835,477. TEMPERATURE CONTROL APPARATUS AND METHOD. Theodore Tovrog, Chicago, and Arthur A. Krawetz, Evanston, Ill.



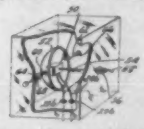
4. In apparatus for testing samples of material, a temperature-regulating bath comprising an open-top container, a heat exchanger, an open conduit for conducting heat exchange liquid from the bath to said heat exchanger and back to the bath, a closed conduit for heat exchange liquid disposed within the bath and communicating with said heat exchanger. . . .

2,835,487. EMERGENCY MECHANISM FOR UNLOCKING COLD STORAGE DOOR AND THE LIKE. Henry B. Clark, Elizabeth, N. J.



6. The combination of a door and means for opening and closing it including an electric motor and a circuit including said motor and a switch for said motor having an actuating stud, a lock construction for securing the door to a structure adjacent the door comprising a keeper element mounted on one side of said door and said structure. . . .

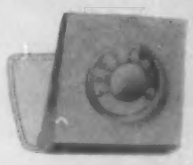
2,835,778. AUTOMATIC HEATING AND COOLING CONTROL. Benjamin Kazan, Princeton, N. J., assignor, by mesne assignments, to Whirlpool Corp.



4. An automatic control for heating and cooling systems, in an enclosure having walls, comprising a housing transparent to heat radiation, a heat conducting metal plate supported by a heat insulator in said housing and having a blackened surface to increase its radiation absorption, a thermostatic element in heat conduction with said plate. . . .

DESIGNS

182,846. SPACE CONDITION RESPONSIVE INSTRUMENT. Leonard B. Olsen, Minneapolis, Minn., assignor to Minneapolis-Honeywell Regulator Co.



Performance Chart for 1956-57 Oldsmobile

Ambient At Cowl Inlet Relative Humidity (%)	Temp. (°F.)	Evap. Pressure At Schrader Valve* (p.s.i.g.)	Engine Speed (r.p.m.)	Discharge Air Temp. (±1°F.)	Head Pressure ±5 (p.s.i.g.)
10	70	34	....	42	85
10	80	34	295- 325	43	130
10	90	34	475- 525	44	170
10	100	34	650- 720	46	210
10	110	34	950-1050	49	230
20	70	34	285- 315	43	92
20	80	34	380- 420	44	137
20	90	34	570- 630	45	172
20	100	34	851- 905	48	217
20	110	34	1140-1260	52	222
30	70	34	340- 380	43	97
30	80	34	475- 525	44	142
30	90	34	705- 755	46	177
30	100	34	960-1060	50	225
30	110	34	1330-1470	55	248
40	70	34	390- 430	43	103
40	80	34	580- 640	45	148
40	90	34	815- 905	47	192
40	100	34	1130-1250	52	233
40	110	34	1520-1680	57	260
50	70	34	435- 485	44	108
50	80	34	690- 760	46	155
50	90	34	960-1060	49	198
50	100	34	1305-1435	53	233
50	110	34	1740-1920	60	270
60	70	34	485- 535	44	113
60	80	34	782- 862	47	162
60	90	34	1090-1210	50	206
60	100	34	1465-1615	55	242
60	110	34	1920-2130	63	282
70	70	34	530- 610	45	119
70	80	34	880- 970	47	168
70	90	34	1215-1345	51	212
70	100	34	1625-1795	57	250
70	110	34	2135-2365	66	293
80	70	34	580- 640	45	124
80	80	34	975-1075	48	175
80	90	34	1345-1485	52	220
80	100	34	1785-1975	59	257
80	110	34	....	69	305
90	70	34	645- 725	45	130
90	80	34	1070-1180	49	183
90	90	34	1470-1630	53	228
90	100	34	1950-2150	64	266
90	110	34	....	71	315

*Suction pressure at compressor should be 1 to 2 p.s.i.g. lower than evaporator pressure.

* * *

Servicing Auto Air Conditioners--

(Continued from preceding page)

ing, especially in extremely hot weather.

Setting of the by-pass valve is adjustable after control cable, lever, and cam have been removed. Engine should be operated at 2,000 r.p.m. with blower on low speed and control lever in maximum cooling position.

Moving adjusting screw of by-pass valve clockwise increases pressure setting of valve; turning screw counter-clockwise lowers pressure setting.

Expansion Valve Adjustment

Superheat setting of the thermostatic expansion valve used on 1956 Oldsmobile systems can be adjusted in the field. Setting of the 1957 valve cannot be changed in the field.

Correct setting of the 1956 valve is 4½ turns out from the fully closed (clockwise) position.

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Place your ad today!

HUSH Money!

15 H.P. UNIT

This photo was taken while the 15 HP unit was operating at full power . . . and the coin didn't toss!

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The units are of smaller dimensions and weigh less than any comparable unit, greatly facilitating installation. They are suction gas cooled, giving greater durability and longer life to the vital motor windings. Bolted construction permits easy take-down for servicing, and simple, speedy removal of valve plates for inspection.

For more information on the complete line of Brunner-Metic Air Conditioning Motor Compressors, contact us. A staff of over 100 sales engineers is available to give you technical assistance.

REFRIGERANT 22

2 CYLINDER

COMPRESSOR	1½ H.P.	2 H.P.	3 H.P.	5 H.P.	5 H.P.	7½ H.P.	10 H.P.	15 H.P.
MODEL NO.		20 HF	30 HF	45 HF	50 HF	75 HF	100 HF	150 HF
NO. CYLINDERS		V-2	V-2	V-2	V-4	V-4	V-4	V-6
BORE & STROKE		1 3/16" x 1⅛"	1 3/16" x 1½"	2 3/16" x 1½"	1 1/16" x 1½"	2" x 1½"	2 3/16" x 1½"	2 3/16" x 1½"
DISPLACEMENT		5.80 CFM	7.75 CFM	11.29 CFM	13.5 CFM	18.80 CFM	22.60 CFM	33.90 CFM
LENGTH—IN.		17⅛"	18⅛"	18⅜"	22⅞"	22⅞"	22⅞"	27⅛"
WIDTH—IN.		12 13/16"	12 13/16"	12 13/16"	14"	13 15/16"	13 15/16"	14"
†HEIGHT—IN.		11¾"	11¾"	11¾"	13⅞"	13⅞"	13⅞"	14 1/16"
NET WEIGHT		135 Lbs.	150 Lbs.	160 Lbs.	235 Lbs.	245 Lbs.	255 Lbs.	310 Lbs.
*CAPACITY		30,000 Btu/hr	41,500 Btu/hr	62,000 Btu/hr	71,200 Btu/hr	99,200 Btu/hr	122,300 Btu/hr	177,500 Btu/hr

REFRIGERANT 12

4 CYLINDER

COMPRESSOR	1½ H.P.	2 H.P.	3 H.P.	5 H.P.	5 H.P.	7½ H.P.	10 H.P.	15 H.P.
MODEL NO.	15 H	20 H	30 H		50 H	75 H		
NO. CYLINDERS	V-2	V-2	V-2		V-4	V-6		
BORE & STROKE	1 3/16" x 1⅛"	1 3/16" x 1½"	2 3/16" x 1½"		2" x 1½"	2" x 1½"		
DISPLACEMENT	5.80 CFM	7.75 CFM	11.29 CFM		18.80 CFM	28.30 CFM		
LENGTH—IN.	17⅛"	17⅛"	18⅛"		22⅞"	26⅜"		
WIDTH—IN.	12 13/16"	12 13/16"	12 13/16"		13 15/16"	13 15/16"		
†HEIGHT—IN.	12¾"	11¾"	11¾"		13⅞"	14 1/16"		
NET WEIGHT	135 Lbs.	150 Lbs.	150 Lbs.		245 Lbs.	290 Lbs.		
*CAPACITY	19,800 Btu/hr	26,500 Btu/hr	42,500 Btu/hr		66,300 Btu/hr	93,800 Btu/hr		

*45° EVAP. 110° COND. TEMP. †INCLUDING MOUNTING SPRING

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